FORM NO. 3317–975GB

TORO®

MODEL NO. 70060 – 6900001 & UP

OPERATOR'S MANUAL

WHEEL HORSE

825 REAR ENGINE RIDER

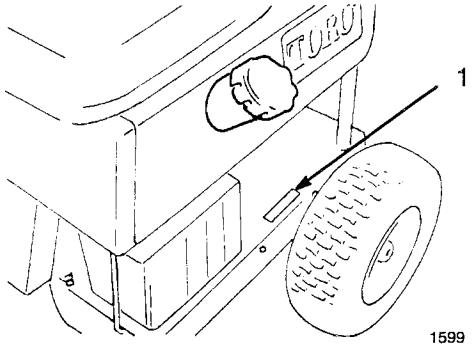
TABLE OF CONTENTS

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 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.



1. Model and Serial Number Location

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 Emissions

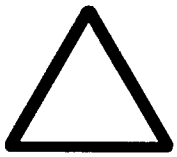
This unit has a maximum airborne noise emissions, based on measurement of identical machines.

Vibration Level

This unit has a maximum vibration level of . . . . . , based on measurement of identical machines.

SYMBOL GLOSSARY

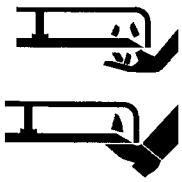
Safety alert triangle–symbol within triangle indicates a hazard



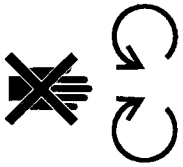
Safety alert symbol

Read operator's manual

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

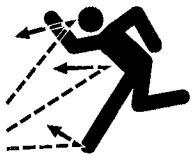


Do not open or remove safety shields while engine is running

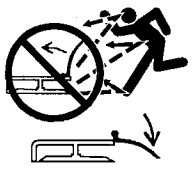


Dismemberment–Rear engine mower in rearward motion

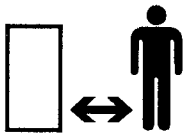
Thrown or flying objects–Whole body exposure



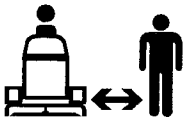
Thrown or flying objects–Rotary side-mounted mower. Keep deflector shield in place



Stay a safe distance from the machine



Stay a safe distance from the machine

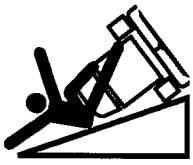


Machine rollover side hill

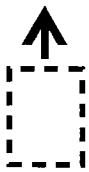
Machine rollover up hill

Machine rollover down hill

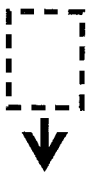
Machine rollover ROPS



Machine travel direction–forward



Machine travel direction–reverse



Machine travel direction–combined

SYMBOL GLOSSARY

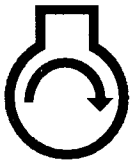
Fast

Slow

Decreasing/Increasing

On/Run

Engine start



Engine stop

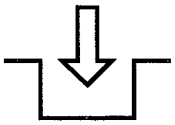
Choke

Brake system

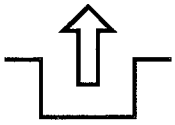
Parking brake

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

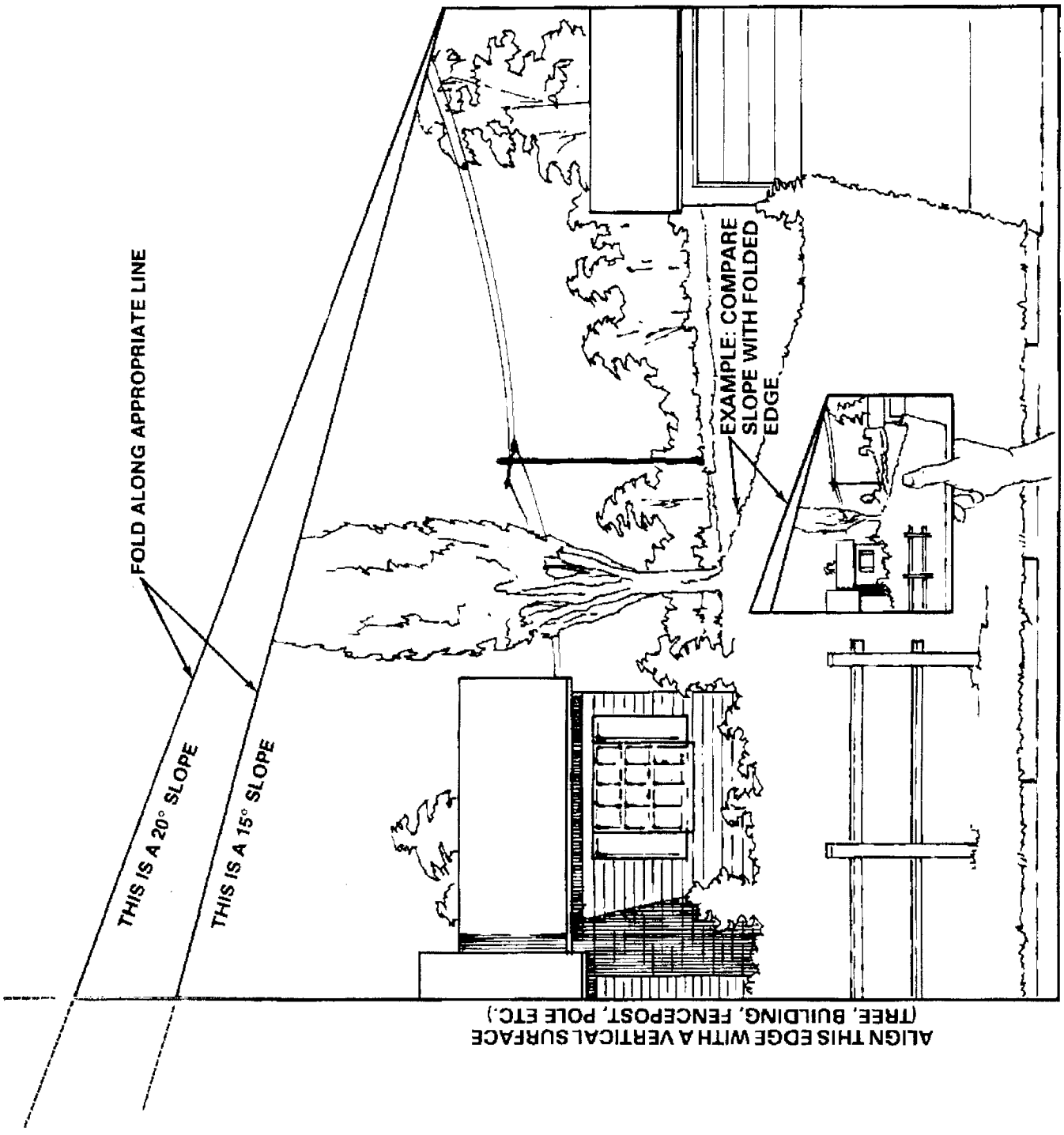
L

High

H

10° SLOPE CHART

Read all safety instructions on pages 3–6



SPECIFICATIONS

Briggs & Stratton Engine: Four cycle engine has output of 8 hp (6 KW) @ 3600 rpm and 12.7 ft/lb (17.2 N·m) torque @ 2500 rpm. Displacement is 19.44 cubic inches (319 cc). Crankcase oil capacity is approximately 36 oz. (1.06 l). Correct spark plug is a Champion RJ-19LM. Recommended spark plug air gap is 0.030 of an inch (0.762 mm).

Mower Housing: Full floating, stamped steel housing has spiral grass chamber, kickers, cover and ring. Width of cut is 25 inches (63.5 cm). Cast iron spindle housing with shaft is supported by sealed ball bearings. Blade pulley is driven by a belt from the engine pulley.

Cutter Blade: Single blade is 25 inches (63.5 cm) long, made of 7 gauge (2.72 mm) carbon steel and heat treated for hardness.

Height-of-Cut Range: Is adjustable to five approximate range settings: 7/8 inch to 2-7/8 inches (2-7mm).

Transmission: Transmission has five speeds forward and one for reverse. Heat treated, sintered metal gears are enclosed in a permanently lubricated (EP Lithium grease), die cast aluminum housing.

Differential: Sintered powdered metal bevel gears are enclosed in a permanently lubricated (Shell Epro 71030 grease), steel housing.

Traction Drive: Drive system has an "A" section v-belt from engine pulley to transmission input pulley. A No. 40 chain joins transmission output sprocket with differential sprocket.

Ground Speed @ 2650 Engine rpm:

1st gear	- 1.1 mph (1.8 kph)
2nd gear	- 1.6 mph (2.5 kph)
3rd gear	- 2.5 mph (4.0 kph)
4th gear	- 3.1 mph (5.0 kph)
5th gear	- 3.7 mph (6.0 kph)
Rev.	- 1.2 mph (1.9 kph)

Wheels and Tires: The front 11 x 4.00-5 and the rear 13 x 5.00-6 tubeless, pneumatic turf tires are installed on demountable stamped steel wheels. Recommended pressure for front and rear tires is 10-14 psi. All tires must be equally inflated to ensure a level cut.

Fuel Tank: Capacity is 4 quarts (3.7 l).

Steering: 13 inch (33 cm) diameter steering wheel.

Throttle Control: Control is located on right side of seat body. Hand-operated throttle control connects to and operates carburetor-mounted throttle and choke. Control has three positions: SLOW, FAST and CHOKE.

Transmission Gear Shift: Single lever, in-line shifting with Z pattern.

Clutch Pedal: Foot-operated pedal is located at left front side of rider. Depressing clutch pedal moves idler pulley away from traction drive belt, which disengages the traction drive.

Brake Pedal: Foot operated pedal is located at right front side of rider. Depressing brake pedal engages a disk brake on side of transmission.

Parking Brake Control: Control is located at right front of center channel. Engage parking brake by moving control to the left while brake pedal is depressed; then release pedal. To disengage parking brake, push brake pedal down so parking brake lever moves back to its normal released position.

Blade Control: Control is mounted on front of seat body. Control has two positions: ENGAGE and DISENGAGE. Interlock switch prevents engine from starting when control is in the ENGAGED position. When control is in DISENGAGE position, the blade brake is applied and blade belt idler pulley is disengaged. By contrast, idler pulley is engaged with blade belt when control is in the ENGAGE position: blade brake is released.

Ignition Switch: Switch is located on right side of seat body. Switch has three positions: ON, OFF and START.

Height-Of-Cut Control: Control is mounted on front of seat body.

General Dimensions (approx):

Wheel Base	-41 in (104 cm)
Wheel Tread	-28 in (71 cm) front outside to outside
Overall Length	-52 in (132 cm)
Overall Height	-38 in (.97 m)
Overall Width	-32 in (81 cm)
Dry Weight	-305 lb (1.6 kg)

Specifications and design subject to change without notice.

LOOSE PARTS

Note: Carefully remove rider and other parts from carton. Use chart below to ensure all parts have been shipped.

DESCRIPTION	QTY	USE
Seat Clamp Washer Capscrew	1 1 4 4	Install Seat, page 11.
Steering Wheel Roll Pin Spacer	1 1 1	Install Steering Wheel, page 11.
Key	1	Use in ignition switch.
Operator's Manual	1	Read before operating rider.

SET–UP INSTRUCTIONS

INSTALL SEAT

1. Position seat onto seat base, inserting seat switch cable thru slot and aligning mounting holes (Fig. 1).

2. Slide wire clamp over seat switch wire (Fig. 1).

3. Using left front mounting slot in seat base, loosely secure wire clamp and seat to seat base with a capscrew and lockwasher (Fig. 1).

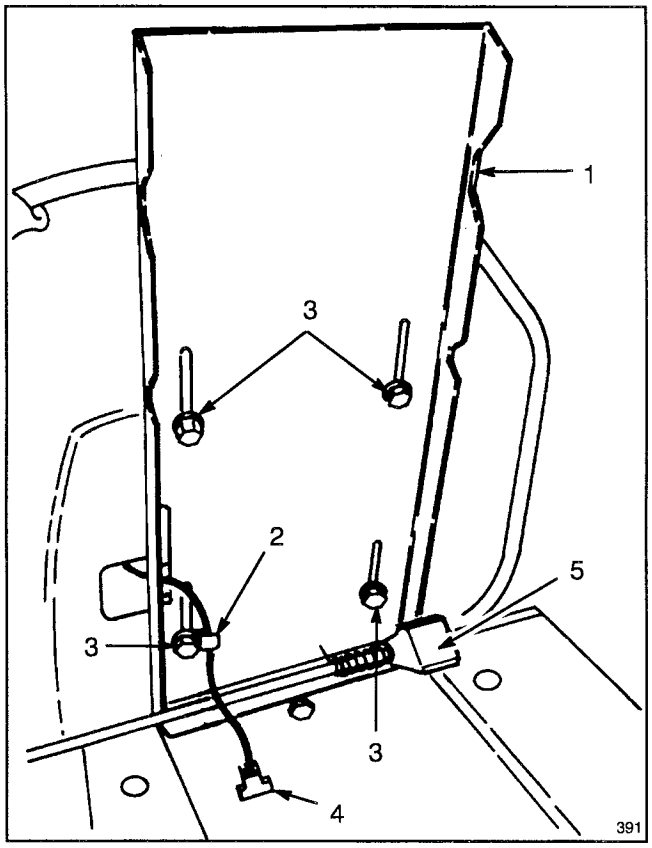


Figure 1

1. Seat base
2. Clamp
3. Capscrews & washers
4. Connectors
5. Seat prop latch

4. Mount seat to seat base with (3) remaining capscrews and lockwashers.

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

5. Tighten all capscrews.

6. Insert seat switch connector into wire harness connector.

INSTALL STEERING WHEEL

1. Slip spacer onto steering shaft until groove in spacer fits over roll pin in shaft (Fig. 2).

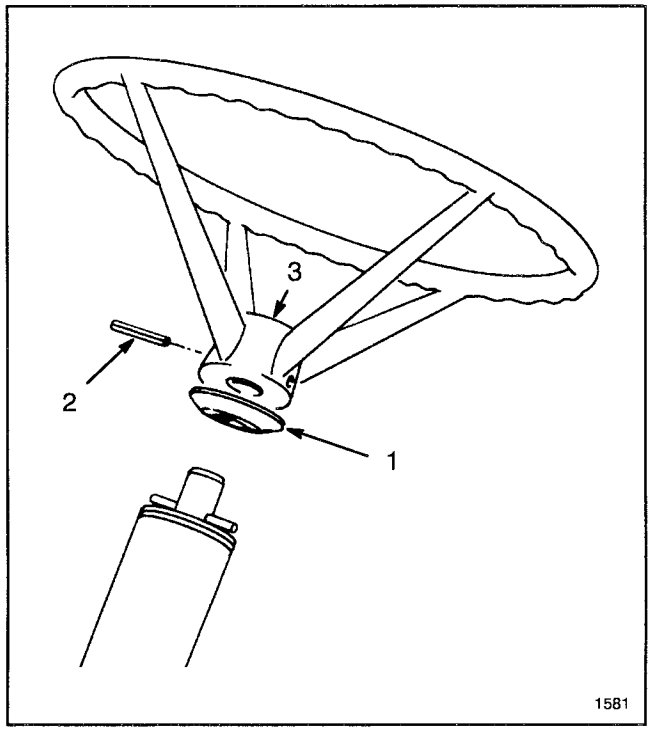


Figure 2

1. Spacer *2. Roll pin* *3. Steering wheel insert*

2. Slip steering wheel onto steering shaft, aligning the steering wheel mount hole with shaft mounting hole.

Note: Steering wheel insert (Fig. 2) should be readable from operator's position on rider with wheels turned straight ahead.

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

4. Drive the roll pin in until flush with the outside of the steering wheel.

SET–UP INSTRUCTIONS

ACTIVATING AND CHARGING BATTERY

The battery must be removed from the rider 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:

CAUTION

Wear safety goggles and rubber gloves when working with electrolyte. Charge the battery in a well ventilated place so gases produced while charging can dissipate. Since the gases are explosive, keep open flame and electrical spark away from the battery; do not smoke. Nausea may result if the gases are inhaled. Unplug charger from electrical outlet before connecting to or disconnecting charger leads from battery posts.

1. Tip the seat up to expose battery. A seat prop latch on the underside of the seat will prevent the seat from falling rearward while working with battery (Fig. 1).

2. Remove wing nut securing battery hold downs to rider chassis (Fig. 3).

3. Remove battery from chassis and set it aside.

4. Remove filler caps from battery and slowly fill each cell until electrolyte is just above the plates. To obtain best results, let battery sit for 20 minutes. Then add electrolyte to the maximum capacity (fill ring).

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

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

6. When battery is charged, disconnect charger from electrical outlet and battery posts.

7. Slowly add electrolyte to each cell until level is up to fill ring. Reinstall filler caps.

Note: Once battery is in service, distilled water only should be added; never add more electrolyte.

8. Reinstall the battery with terminal posts toward the rear of the machine and vent tube thru hole in frame (Fig. 3).

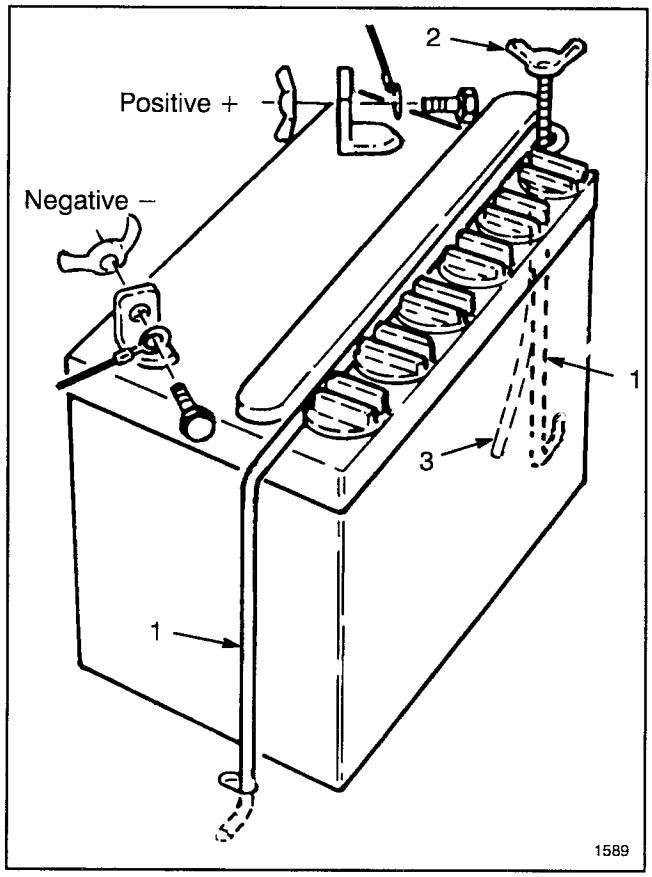


Figure 3

1. Battery hold down *2. Wing nut* *3. Vent tube*

9. Reinstall battery hold downs.

10. Reinstall the positive cable to the positive (+) terminal and the negative cable (black) to the negative (–) terminal of the battery and secure with capscrews and wing nuts (Fig. 3).

BEFORE OPERATING

FILL CRANKCASE WITH OIL

The rider is shipped from the factory without oil in the crankcase. Therefore, before trying to start engine, oil must be added to the crankcase.

IMPORTANT: CHECK OIL LEVEL EVERY TIME YOU FILL GAS TANK. Initially, change oil after the first 2 hours of operation; thereafter, under normal conditions, change oil after every 25 hours of operation. However, change oil more frequently when engine is operated in dusty or dirty conditions.

1. Move rider to a level surface to ensure accurate oil level reading and raise seat to expose oil dipstick.

2. Clean the area around oil dipstick so foreign matter cannot enter fill tube when plug is removed.

3. Remove dipstick from fill tube (Fig. 4).

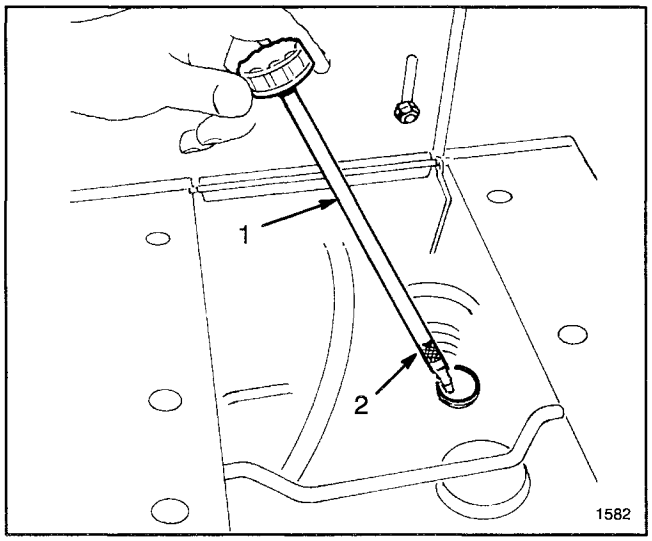


Figure 4

1. Dipstick plug *2. Full mark*

4. Crankcase capacity is approx. 36 oz. (1.06 l). Amount of oil required to fill crankcase may be less than 36 oz. due to oil remaining in engine. **DO NOT OVERFILL.**

5. Slowly pour oil into crankcase (Fig. 4). The engine uses any high quality detergent oil having the American Petroleum Institute — API — "service classification" SF or SG. Oil viscosity — weight — must be selected according to anticipated ambient temperature.

A. Above +40°F — Use SAE 30.

B. 0°F to 100°F — Use SAE 10W–30.

C. Below +20°F — Use SAE 5W–30.

Note: DO NOT USE SAE 10W40 OIL.

6. Rock the rider gently to release any air that may be trapped in crankcase. Screw dipstick fully into fill tube; then remove it and make sure that oil level is up to FULL mark on dipstick (Fig. 4). If level is low, add only enough oil to bring level up to FULL mark.

7. Install dipstick into fill tube. Wipe up any oil that may have spilled.

BEFORE OPERATING

FILL FUEL TANK WITH GASOLINE

DANGER

Because gasoline is flammable, caution must be used when storing or handling it. Do not fill fuel tank while engine is running, hot or when 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 fuel tank outside and wipe up any spilled gasoline before starting engine. Use a funnel or spout to prevent spilling gasoline, and fill tank to about 1/2 inch (13 mm) below the filler neck. Store gasoline in a clean, safety-approved container and keep the cap in place on container. Keep 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.

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'S STABILIZER/CONDITIONER OR A SIMILAR PRODUCT. TORO'S 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.

1. Clean area around fuel tank cap so foreign matter cannot enter tank when cap is removed.

2. Remove cap from fuel tank and fill tank with unleaded regular gasoline. Then reinstall fuel tank cap.

3. Wipe up any gasoline that may have spilled.

CONTROLS

Gear Shift (Fig. 5)—The transmission has five forward speeds, neutral, and reverse. The gear shift lever is located on right side of operator. An interlock switch, which prevents engine from being started when transmission is in gear, is mounted on top of transmission.

Blade Control (Fig. 5)—Blade control engages and disengages the cutter blade. An interlock switch prevents engine from starting when control is in the ENGAGE position. Engine will start when control is in the DISENGAGE position only.

Throttle Control (Fig. 5)—Throttle control connects to and operates carburetor–mounted throttle and choke. Control has three positions: SLOW, FAST and CHOKE.

Height–of–Cut (Fig. 5)—Height–of–cut control varies the cutting height from approx. 1–1/2 to 3–1/2 inches in five increments.

Ignition Switch (Fig. 5)—Switch has three positions: ON, OFF and START.

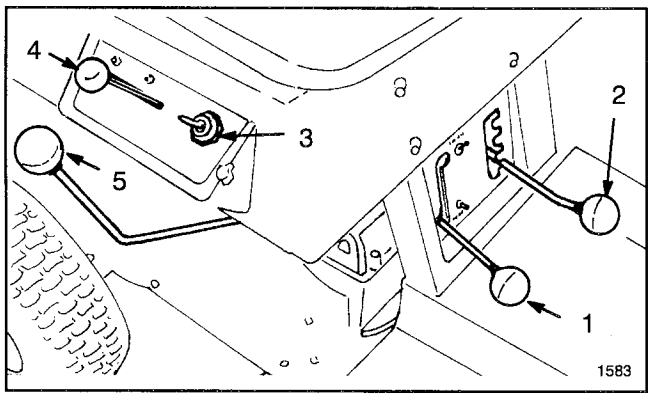


Figure 5

1. *Blade control*
2. *Height–of–cut control*
3. *Ignition switch*
4. *Throttle control*
5. *Gear shift*

Clutch Pedal (Fig. 6)—Foot–operated clutch pedal is used in conjunction with gear shift. Depress clutch pedal fully when shifting gears. Depress clutch pedal whenever brake is used.

Brake Pedal (Fig. 6)—Foot–operated brake pedal must be depressed to slow down or stop the rider. When pedal is depressed, a caliper engages the brake disc on the side of the transmission. Always depress clutch pedal when using brake.

Parking Brake (Fig. 6)—Parking brake must be used in conjunction with brake pedal. When pedal is depressed and end of parking brake lever holds brake pedal in depressed position, a caliper engages the brake disc at side of transmission.

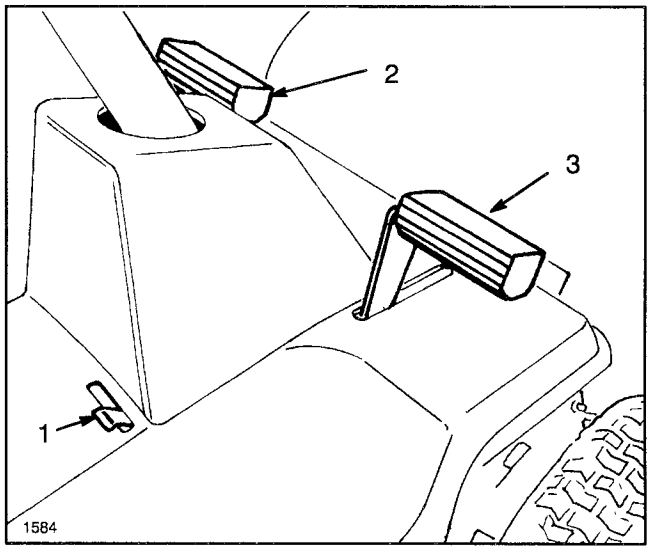


Figure 6

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

STARTING AND STOPPING INSTRUCTIONS

Note: Make sure wire is installed on spark plug, battery is activated, and cables are installed on battery posts.

1. Engage the parking brake (Fig. 6): refer to using Parking Brake, page 17.

2. Move gear shift into neutral and blade control into DISENGAGE detent (Fig. 5).

Note: An interlock switch on the transmission and blade control prevents engine from starting unless the operator is sitting on the seat, the gear shift is in neutral and the blade control is in the DISENGAGE detent.

3. Move throttle control to CHOKE position (Fig. 5) when starting a cold engine. However, a hot engine requires no choking. Move throttle to FAST position for starting.

4. Rotate ignition key (Fig. 5) to START position. When engine starts, release the key and move throttle between FAST and SLOW if choke was used for starting. Operate the rider with throttle control in FAST (full throttle) position for best performance.

TO STOP

1. To stop the engine, depress clutch pedal, shift into neutral and engage parking brake. Move blade control into DISENGAGE detent, move throttle control to SLOW and allow engine to idle a short period before rotating ignition key to OFF. Rotate ignition key to OFF and 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 checking the oil level each time you fill the gas tank and changing the oil after the first two hours of operation. Some oil consumption will be noticed during break in, but will improve as used. Operate the transmission in all gears to ensure that the drive system is functioning correctly. After the first five hours of operation, check the condition and adjustment of the drive chain and belts.

USING 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.

2. Move parking brake control to the left and release brake pedal until it contacts end of parking brake lever (Fig. 6).

3. To release the parking brake, depress brake pedal (Fig. 6), which will allow parking brake lever to return to its disengaged position. Then release brake pedal.

IMPORTANT: Disengage parking brake before shifting into gear to commence operation. If the rider is driven when parking brake is engaged, accelerated brake wear will result.

ADJUSTING HEIGHT-OF-CUT

The height-of-cut may be set in one of five positions: 1-1/2 inches to 3−1/2 inches.

1. Move blade control into DISENGAGE detent (Fig. 5).

2. Move height-of-cut control (Fig. 5) into desired setting.

3. To engage blade for cutting, slowly move blade control into ENGAGE detent.

GRASS DEFLECTOR

WARNING

The grass deflector is a safety device that routes discharged material down toward the turf; therefore, do not remove the grass 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 blade control into DISENGAGE detent.

2. Start the engine: refer to Starting/Stopping Instructions, page 16.

IMPORTANT: When rider is used for the first time, operate the transmission in all gears to ensure that drive system is functioning correctly and become familiar with the controls and operating characteristics. Also check condition of the drive chain and belts and make any adjustments that may be required.

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

IMPORTANT: To avoid a jerky start and putting a heavy load on the transmission, move throttle to slow speed and release clutch pedal slowly. If shifting into reverse gear is difficult, jog clutch pedal in and out to get 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.

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 rider to ensure area is clear before backing.

OPERATING INSTRUCTIONS

4. To engage blade for cutting, move height–of–cut control to the desired setting. Move the throttle to FAST position. Start the blade whirling by slowly moving blade control into ENGAGE detent.

5. To stop engine, in sequence, depress clutch and brake pedals, move blade control into DISENGAGE detent, gear shift into neutral, and throttle to SLOW; rotate key to OFF position after allowing engine to idle a short period of time.

GRASS CUTTING TIPS

1. When the rider is used to cut a lawn for the first time, cut grass slightly longer than normal to ensure that cutting height of mower housing will not cause scalping that could result from an uneven ground surface.

2. If the grass is ever allowed to grow slightly longer than normal, or if it contains high moisture, raise cutting height higher than usual and cut the grass at this setting. Next, cut the grass again using the lower, normal setting. This method of cutting long grass results in an even distribution of clippings and an acceptable quality–of–cut.

3. Very long or extremely wet grass can be cut, but specific operating techniques must be used. Start by setting height–of–cut in the highest position. Using 1st gear and maximum throttle speed, move into the grass and cut a swath that is only half as wide as the mower housing. If side discharging, direct grass clippings toward area that was cut previously. Stop forward movement occasionally to allow discharge area to clear itself. Cutting too much grass may clog the mower housing and discharge area. If mower housing does clog, shut engine off, disengage blade and remove the obstruction with a stick.

DANGER

Before removing any obstruction from mower housing, move blade control into DISENGAGE detent, depress clutch and brake pedals, shift into neutral and turn ignition key to OFF position. Remove wire from spark plug to prevent the possibility of accidental starting.

OPTIONAL BAGGING OPERATION

To ensure efficient operation of the grass catchers, you must understand their operating characteristics. Besides cutting turf uniformly, the blade also generates high–velocity air currents. These air currents propel grass clippings from under the cutting deck, through the duct, and into the rear catcher. However, some conditions may cause the rear grass catching system to malfunction.

One condition that may cause a conveying malfunction is when the cutter deck is set too low. Since air is required to propel grass clippings, there must be a channel for air. And if the channel is obstructed, conveying will be inefficient. So don't set the height-of-cut too low because grass surrounding the cutter deck will prevent air from entering under the cutter deck and into the conveying system.

A second condition that may cause a malfunction is when long, wet and heavy grass clippings cannot be propelled into the catcher. Though the supply of air may be acceptable for efficient conveying, some grass clippings may fall from the main air stream and into the duct. This starts a build-up of grass clippings in the duct, discharge chute, and against the inside of the cutter deck. The chute and duct may even become plugged. To ensure efficient grass collecting, try different heights-of-cut until you get good results.

Another condition affecting conveying is moisture. If the turf is wet from watering, morning dew, or its own internal moisture content, the system may malfunction. To ensure efficiency, cut the grass when it is dry. Since even dry grass has some moisture content clippings may stick to the duct, discharge chute, and on the inside of the cutter deck. This slight build-up is normal, but the rear hopper, duct, discharge chute, and cutter deck must be cleaned to prevent an undesirable build-up of clippings.

Also, consider ground speed. As the engine overloads (slows down) air velocity decreases. Therefore, the ground speed of the rider must be slow enough to allow all grass clippings to move continuously from under the cutter deck, through the duct, and into the catcher.

OPERATING INSTRUCTIONS

BAGGING TIPS

1. To ensure maximum air currents in the system, move the throttle to FAST and the gear shift to first gear (which is the slowest ground speed).

2. Don't bag grass when it is wet or too long. However, you can cut it with the grass deflector installed. Several hours later, pick up the dry grass clippings with the complete rear grass catcher installed.

3. Cut the grass often, especially when turf growth is rapid. High height-of-cut produces good grooming results. If shorter turf is desired, cut the grass again.

4. Overlap swaths to produce an even cutting pattern and to minimize the load on the engine. Make sure grass clippings move continuously through the duct.

5. While operating, glance frequently at the duct. If grass clippings are not moving through the duct, there may be an obstruction in the duct or discharge chute. The obstruction can usually be cleared by moving the gear shift to NEUTRAL, raising the cutter deck to the highest position and slapping the side of the installed duct near the obstruction. If the obstruction does not pass into the catcher when the duct is slapped, move the blade control to DISENGAGED and turn the ignition key to OFF. Then remove the duct and clear with a stick or similar object. After you remove the obstruction, install the duct. restart the engine, and continue grass collecting.

6. After using the grass catcher, remove the mulch from inside the catcher, duct, discharge chute, and from the underside of the cutter deck. (If grass clippings remain on the inside of these parts, a malfunction will likely result.) To retain translucency, remove grass and dirt stains from inside the duct by washing it with soap and water. Keep the blade sharp to ensure good grooming and conveying results.

DANGER

Do not remove the duct, discharge chute of rear catcher when the engine is running or when the blade is rotating because personal injury could result.

MAINTENANCE INTERVAL CHART

	2 Hour	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		
Grease Front Axle Spindles		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			
Check Drive Chain	X	X	X			More often in dusty, dirty, conditions.
Drain Gasoline			X			
Clean Outside of Engine		X	X			
Clean Mower Housing	X		X			
Clean Blower Screen On Engine		X	X	X		
Paint Chipped Surfaces			X			
Replace Interlock Switches					X	

MAINTENANCE

CAUTION

To prevent accidental starting of the engine while performing maintenance, shut engine off, remove key from ignition switch and pull wire off spark plug (Fig. 7). Make sure wire does not contact plug accidentally.

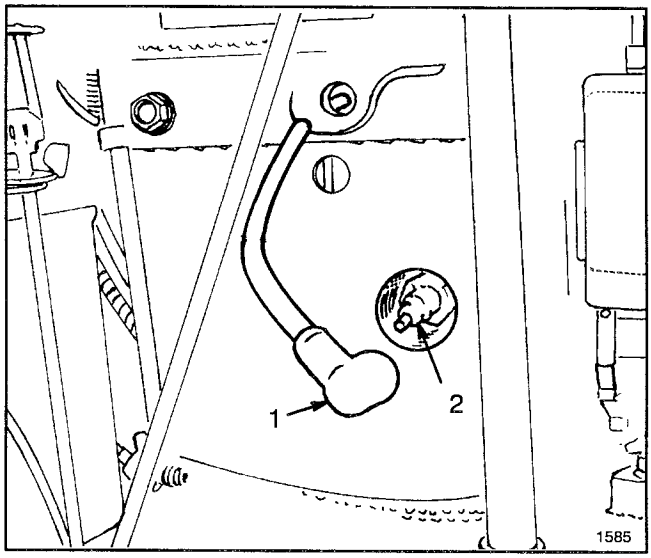


Figure 7

1. Spark plug wire *2. Spark plug*

MAINTENANCE

GREASE FRONT AXLE SPINDLES AND WHEELS

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

1. Wipe grease fittings on spindles and wheels (Fig. 8) with a clean rag. If there is paint on front of fittings, scrape it off.

2. Lubricate both axle spindles w/No. 2 general purpose grease (Fig. 8). 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. 8). Pump grease gun about four times. Wipe up any excess grease.

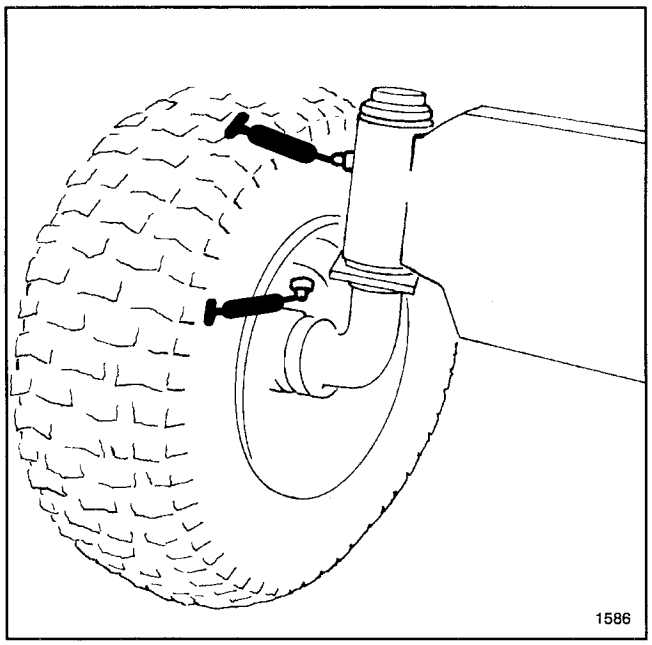


Figure 8

GREASE REAR AXLES

The rear wheels should be removed and axles greased once a year to prevent the formation of rust and to simplify future wheel removal.

LUBRICATE PIVOT POINTS

The mechanical pivot points on the rider must be lubricated after every 25 hours of operation; however, lubricate more frequently 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 the rider is tipped, drain all gasoline from fuel tank and oil from crankcase. Also remove battery so acid does not spill on the rider.

1. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 23.

2. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1-6, page 22.

3. Remove battery from chassis: refer to Activating and Charging Battery, page 12.

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

5. Tip rider up and onto its rear end.

6. Remove mower housing from rider chassis: refer to Removing/Installing Mower Housing, steps 1-10, page 27.

7. Lubricate all mechanical pivot points on rider and mower housing with light oil.

8. Install mower housing onto rider chassis: refer to Removing/Installing Mower Housing, page 27.

9. Tip rider back to its normal operating position.

10. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 13.

11. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 14.

12. Install the battery: refer to Activating and Charging Battery, page 12.

CLEANING COOLING SYSTEM

Clean cooling system frequently. Remove build-up of grass, dirt or other debris from the cylinder and cylinder head cooling fins, air intake screen on flywheel end, and carburetor-governor levers and linkage. This will help ensure adequate cooling and correct engine speed and reduce the possibility of overheating and mechanical damage.

MAINTENANCE

SERVICING AIR CLEANER

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

1. Remove wire from spark plug.

2. Unsnap and lift air cleaner cover off carburetor (Fig. 9).

3. Remove foam element (Fig. 9). Examine element for dirt or discoloration and clean if necessary.

4. Clean element as follows:

   A. Wash foam element in solution of liquid detergent and water to remove dirt. Rinse thoroughly in clear water.

   B. Wrap the element in cloth and squeeze it dry. Do not twist the element or it may tear.

   C. Apply approximately 5 teaspoons (25 ml) of oil to the element, work the oil in until the whole element is impregnated and squeeze the element thoroughly to remove all excess oil.

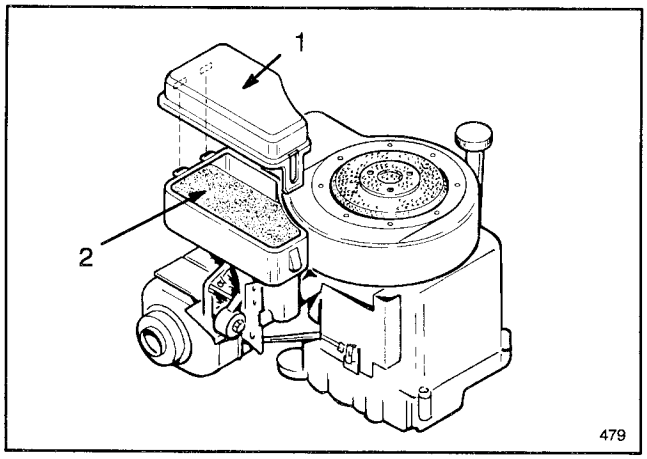


Figure 9

1. Cover *2. Foam element*

5. Reinstall air cleaner foam element and snap cover back on carburetor.

IMPORTANT: Do not operate engine with air cleaner element removed or engine damage will result.

CHANGING CRANKCASE OIL

Check oil level every time you fill gas tank. Change oil after the first 2 hours of operation; thereafter, under normal conditions, change oil after every 25 hours of engine operation. However, change oil more frequently when engine is operated in dusty or sandy conditions. If possible, run engine just before changing oil because warm oil flows better and carries more contaminants than cold oil.

1. Position rider on a level surface so oil drains completely and a true reading results when crankcase is refilled.

2. Stop engine and pull wire off spark plug (Fig. 7).

3. Move blade control into DISENGAGE detent and set height-of-cut in lowest position.

4. Clean area around drain plug. Next, put a shallow drain pan under rider to catch the oil.

5. Remove drain plug (Fig. 10).

6. When oil is drained completely, reinstall drain plug and wipe up any oil that may have spilled.

7. With rider parked on a level surface, fill crankcase with oil: refer to Fill Crankcase With Oil, page 13.

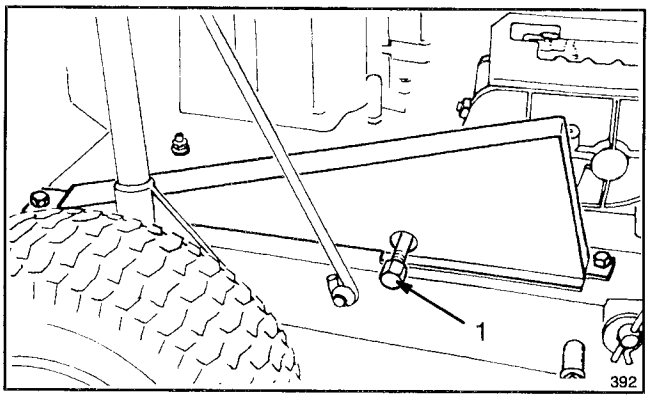


Figure 10

1. Drain plug

MAINTENANCE

DRAINING GASOLINE FROM FUEL TANK

CAUTION

Since gasoline is highly flammable, drain it outdoors and make sure 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 a pipe when handling gasoline.

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

1. Clean around fuel tank cap so foreign matter cannot enter filler hole when cap is removed. Next, remove cap from fuel tank (Fig. 11).

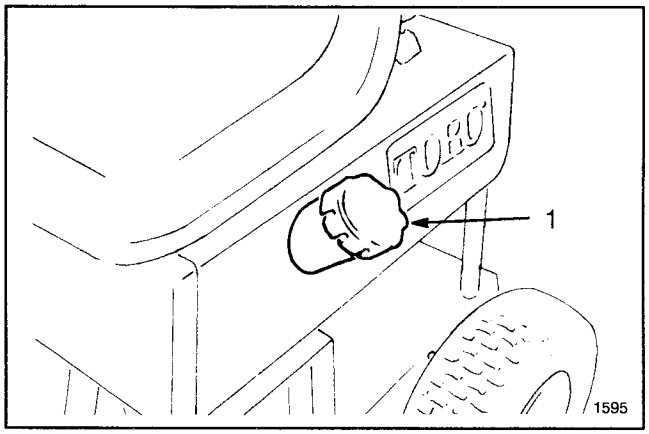


Figure 11

1. Fuel tank cap

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.

REPLACING SPARK PLUG

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

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

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

2. Pull wire off spark plug and remove plug from cylinder head.

3. Check condition of 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 air gap between center and side electrodes at 0.030 of an inch (0.762 mm) (Fig. 12). Install correctly gapped spark plug w/gasket seal, and tighten plug to 15 ft-lb (20.4 N.m). If a torque wrench is not used, tighten plug firmly.

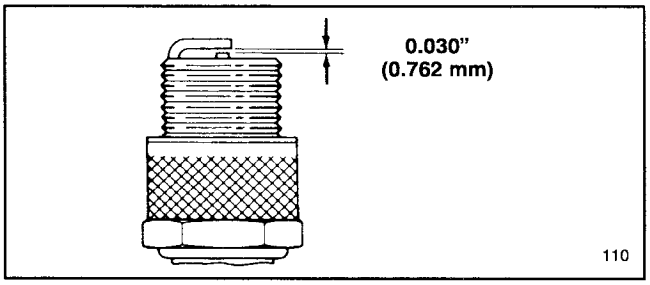


Figure 12

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

MAINTENANCE

ADJUSTING THROTTLE/CHOKE CONTROL

To ensure that 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 throttle control is ever replaced, adjustment is also necessary. Before the carburetor is adjusted, ensure that throttle control is operating properly.

1. Move throttle control lever to FAST detent position.

2. The throttle lever should be just touching the choke link (Fig. 13); if they are not in this position, an adjustment is necessary:

A. Place remote control lever in FAST position.

B. Loosen the throttle cable clamp screw (Fig. 13) and move the control cable casing and wire until the throttle lever touches choke link.

C. Tighten the cable clamp screw. Move control to SLOW then back to FAST to ensure proper adjustment. Repeat procedure if necessary.

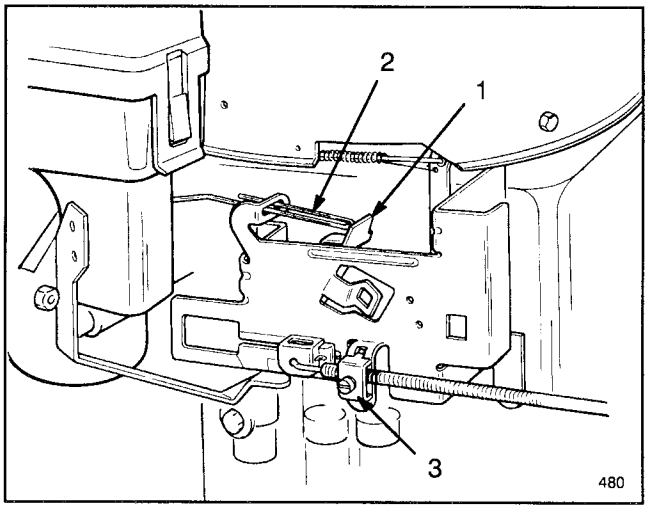


Figure 13

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

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, altitude and load.

IMPORTANT: Before the carburetor is adjusted, throttle control must be checked for proper operation: refer to Adjusting Throttle/Choke Control, page 24.

1. Gently turn idle mixture valve clockwise until it **just** closes (Fig. 14). Turning valve in too far may cause damage.

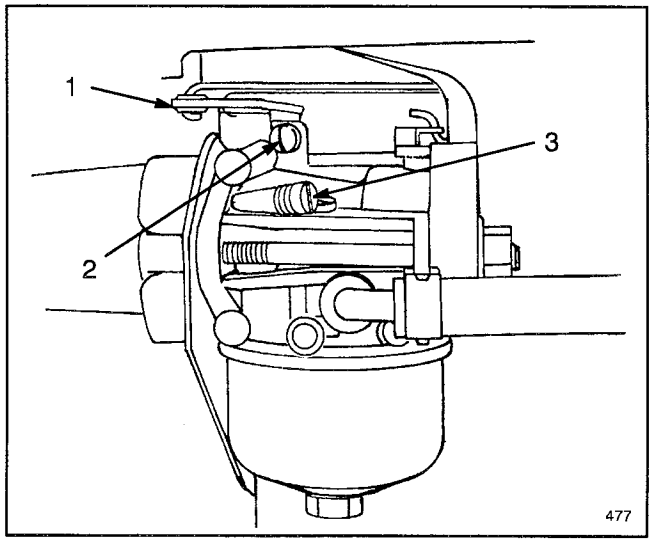


Figure 14

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

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

WARNING

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

3. Start engine and move throttle control to SLOW position.

4. Rotate throttle (Fig. 14) counterclockwise and hold against idle speed adjusting screw (Fig. 14) while turning idle speed adjusting screw to obtain 1750 RPM.

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

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

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

SERVICING CUTTER BLADE

WARNING

Check cutter blade every time rider is tipped on end. If bolt holding blade is loose, tighten it to 45–60 ft–lb. If blade or sail (Fig. 16) at end of blade is worn, eroded, or cracked, replace the blade. Replace the blade if it is bent or out–of–balance. Always use genuine TORO replacement blade to ensure safety and best performance. NEVER USE WILL–FIT REPLACEMENT BLADE.

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

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

2. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 23.

3. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1-6, page 22.

4. Remove battery from chassis: refer to Activating and Charging Battery, page 12.

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

6. Grasp end of blade using a rag or thickly padded glove; then remove blade bolt, washer and blade (Fig. 15).

Note: Since blade bolt is tightened to 45-60 ft-lb (61-81 N·m) 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.

7. Using a file, sharpen cutting edge at both ends of the blade (Fig. 16).

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

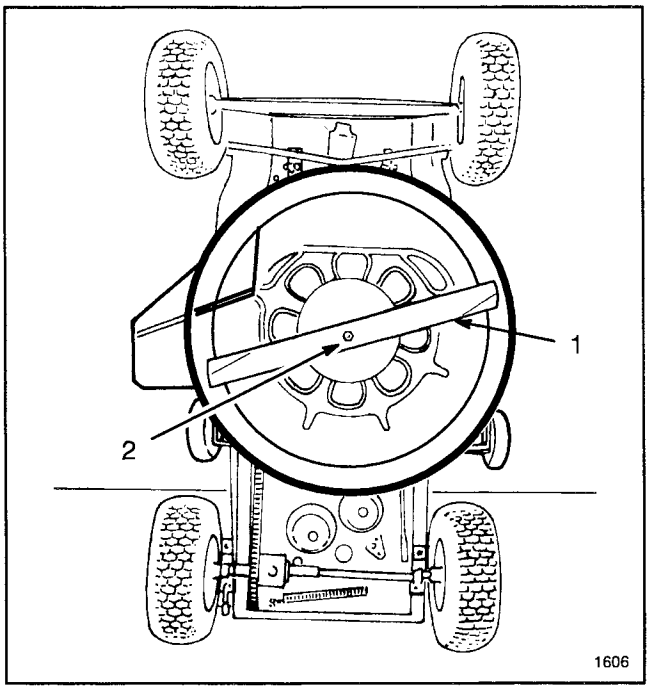


Figure 15

1. Blade *2. Bolt & washer*

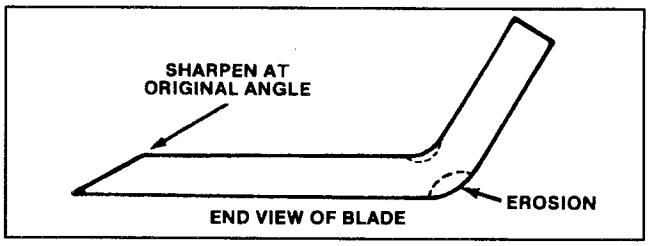


Figure 16

8. Check balance of blade 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 blade is not balanced, file more material off cutting edge of the blade. Continue to file and check the blade until it is balanced.

9. In sequence, reinstall blade, washer and blade bolt (Fig. 15). Tighten blade bolt to 45-60 ft-lb (61-81 N·m).

IMPORTANT: Make sure cutting edge of blade is away from mower housing.

10. Tip rider back to its normal operating position.

11. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 12.

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

13. Install the battery: refer to Activating and Charging Battery, page 12.

CLEANING UNDERSIDE OF MOWER HOUSING

To ensure a good quality–of–cut, underside of mower housing must be kept clean. Periodically apply a coat of past wax on inside of mower housing. This will retard rust and prevent dirt and grass from sticking on inside of housing.

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

IMPORTANT: To clean underside of mower housing, the rider must be tipped on its rear end. Before the rider is tipped, drain all gasoline from fuel tank and oil from crankcase. Also remove battery so acid does not spill onto the rider.

2. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 23.

3. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1–6, page 22.

4. Remove battery from chassis: refer to Activating and Charging Battery, page 12.

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

6. Remove grass clippings and dirt that are sticking to inside of housing (Fig. 15) by spraying with a garden hose. Scrape out grass and dirt that water does not remove from housing; then spray housing again.

7. Since rider is tipped on end, check condition of blade (Fig. 16).

8. Tip rider back to its normal operating position.

9. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 13.

10. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 14.

11. Install the battery: refer to Activating and Charging Battery, page 12.

MAINTENANCE

REMOVING/INSTALLING MOWER HOUSING

1. Stop engine and pull wire off spark plug.

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

3. Move height–of–cut control to lowest position.

IMPORTANT: To remove mower housing from chassis, rider may be tipped on its rear end. Before rider is tipped, gasoline must be drained from fuel tank and oil from the crankcase. Also, remove the battery so acid does not spill onto the rider.

4. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 14.

5. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1–6, page 22.

6. Remove battery from chassis: refer to Activating and Charging Battery, page 12.

7. Tip rider onto its rear end.

8. Remove blade drive belt: refer to Replacing Blade Drive Belt, page 27.

9. Remove cotter pin and clevis pin securing deck brake rod to idler bracket (Fig. 17).

10. Remove (2) hairpin cotters and washers retaining mower housing to mounting pins (Fig. 17). Grasp mower housing and move it to the side until housing slides off pins, then forward to allow front mounts to drop.

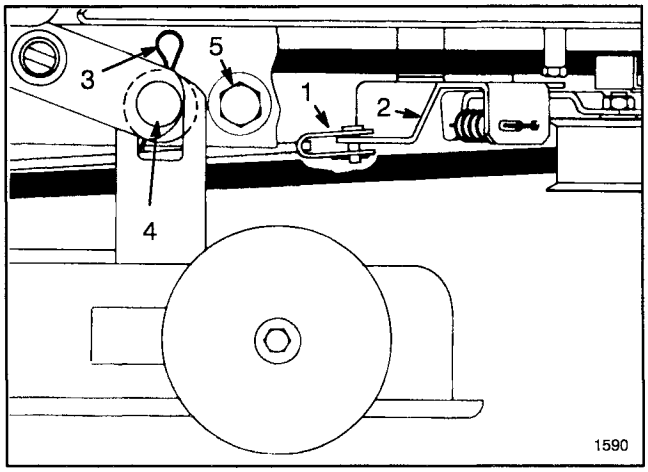


Figure 17

1. *Brake rod*
2. *Idler bracket*
3. *Cotter pin*
4. *Mounting pin*
5. *Deck stops*

11. To reinstall mower housing, reverse removal procedure.

12. Reinstall blade drive belt: refer to Replacing Blade Drive Belt, page 27.

13. Tip rider back to its normal operating position.

14. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 13.

15. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 14.

16. Install the battery: refer to Activating and Charging Battery, page 12.

REPLACING BLADE DRIVE BELT

IMPORTANT: To replace the blade drive belt, the rider may be tipped on its rear end. However, before the rider is tipped, drain all gasoline from fuel tank and oil from crankcase. Also remove battery so acid does not spill onto the rider.

1. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 23.

2. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1–6, page 22.

3. Remove battery from chassis: refer to Activating and Charging Battery, page 12.

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

5. Remove capscrews, retainers and locknuts securing deck stops to each side of mower frame (Fig. 17). Slide mower housing rearward to release belt tension.

6. Move height–of–cut control to lowest position.

7. Loosen capscrews securing (2) engine pulley belt guides and move guides away from pulley. Remove deck drive belt from engine pulley (Fig. 18).

8. Move blade control into ENGAGE detent so brake is away from mower housing pulley.

9. Remove (2) screws securing belt guide to mower housing and remove belt guide. Remove belt from pulley.

10. Make sure blade control is in ENGAGE detent so brake is away from mower housing pulley and install new belt around pulley. Reinstall belt guide to mower housing.

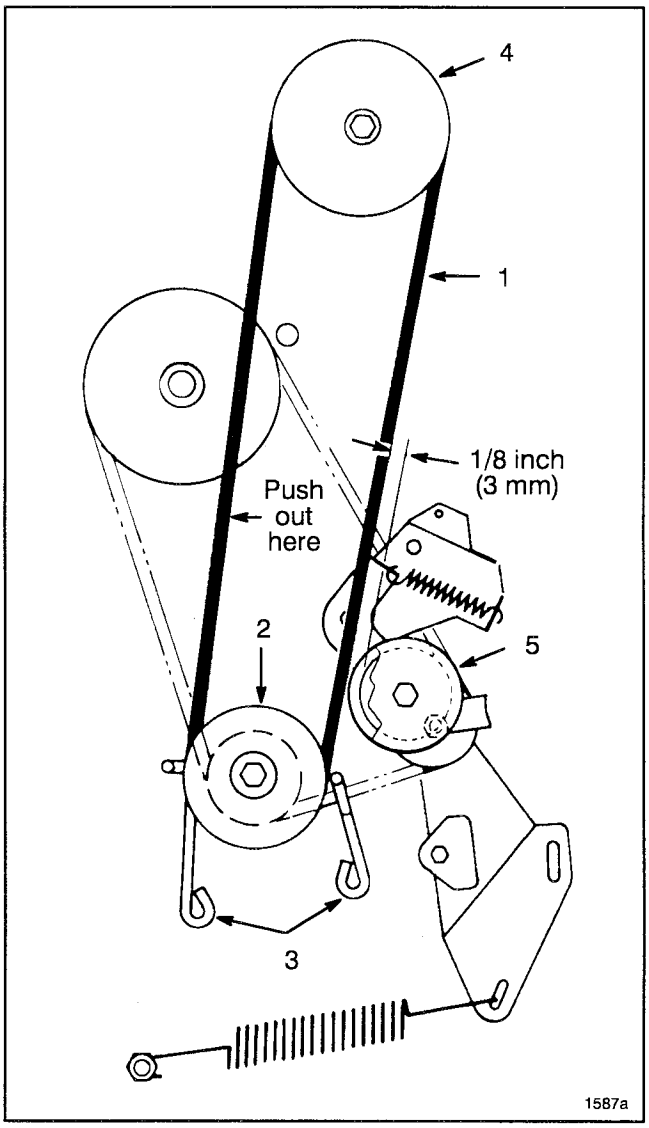


Figure 18

1. *Blade drive belt*
2. *Engine pulley*
3. *Engine pulley belt guides*
4. *Mower housing pulley*
5. *Idler pulley*

11. Route belt around engine pulley and reinstall belt guides. Make sure belt guides are within 1/8" of pulley or belt but not making contact.

12. Pushing out on belt (removing slack), as shown in fig. 18, check clearance between outside of belt and inside of idler pulley (Fig. 18). Clearance should be approximately 1/8 inch (3mm).

13. If clearance between belt and pulley is correct, proceed to step 16, otherwise proceed to next step for adjustment procedure.

14. Locate deck engagement rod end on left side of transmission (Fig. 19). Remove clevis pin retainer and rotate clevis to lengthen or shorten rod until desired clearance between belt and pulley is attained.

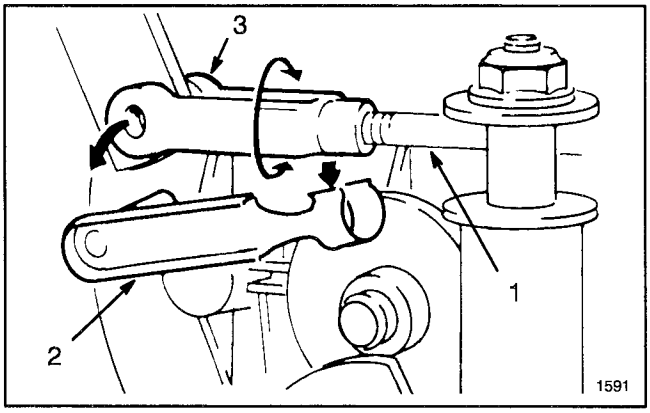


Figure 19

1. *Deck engagement rod*
2. *Clevis pin retainer*
3. *Clevis*

15. Reconnect clevis and recheck adjustment.

16. Tip rider back to its normal position.

17. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 13.

18. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 14.

19. Install the battery: refer to Activating and Charging Battery, page 12.

MAINTENANCE

REPLACING TRACTION DRIVE BELT

IMPORTANT: To replace the traction drive belt, the rider may be tipped on its rear end. Before the rider is tipped, drain all gasoline from fuel tank and oil from crankcase. Also remove battery so acid does not spill onto the rider.

1. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 23.

2. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1–6, page 22.

3. Remove battery from chassis: refer to Activating and Charging Battery, page 12.

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

5. Remove blade drive belt: refer to Replacing Blade Drive Belt, page 27.

6. Remove the mower housing: refer to Installing/Removing Housing, page 27.

7. Unhook large traction spring from mounting screw (Fig. 20). Use caution when removing spring as it is heavily tensioned.

8. Unhook idler spring from idler bracket (Fig. 20).

9. Remove locknut and washer securing idler bracket to frame and remove bracket (Fig. 20).

10. Loosen the locknut on pulley until belt guide can be removed (Fig. 20). Remove belt from all pulleys.

11. Reverse procedure to reinstall belt.

Note: When reinstalling belt guide to idler pulley, make sure edge of belt guide is parallel to frame as shown in Figure 20.

12. Install mower housing: refer to Removing/Installing Mower Housing, steps 11–14, page 27.

13. Tip rider back to its normal operating position.

14. Fill crankcase with oil: refer to Fill Crankcase with Oil, page 13.

15. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 14.

16. Install the battery: refer to Activating and Charging Battery, page 12.

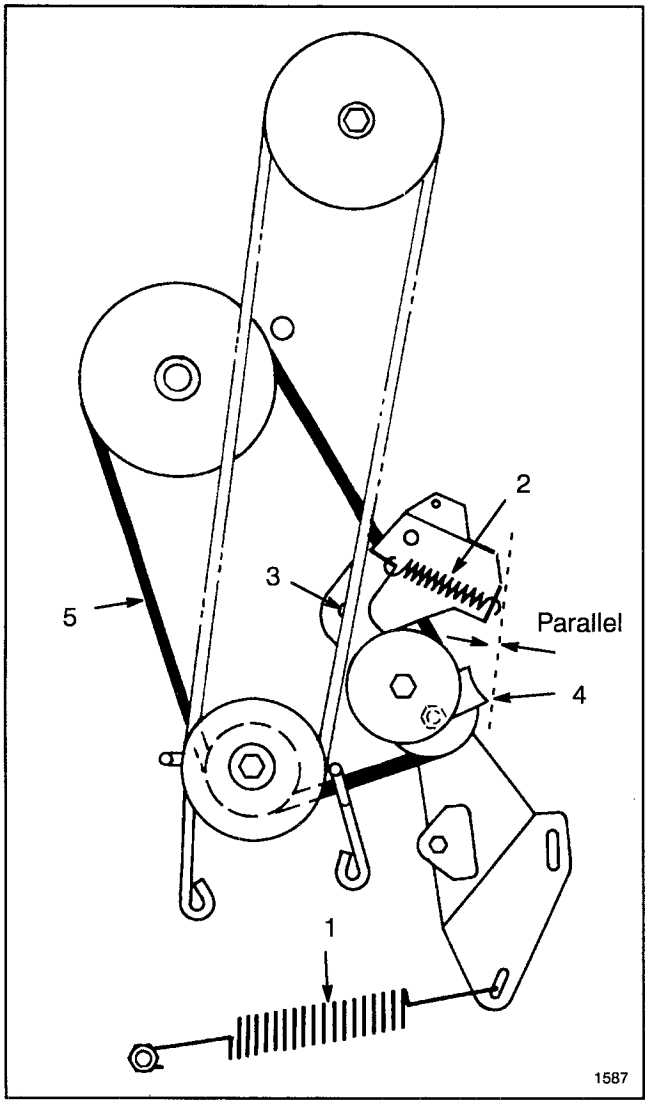


Figure 20

1. *Traction spring*
2. *Idler spring*
3. *Locknut & washer securing idler bracket*
4. *Pulley belt guide*
5. *Traction drive belt*

MAINTENANCE

CHECKING/ADJUSTING DRIVE CHAIN

The drive chain must be adjusted to maintain 1/8 of an inch deflection at mid span between transmission and differential sprockets. Check chain deflection after the first 5 hours of operation and after every 25 hours of operation.

1. Remove two screws securing chain cover to rider chassis and lift off chain cover (Fig. 21).

IMPORTANT: If chain is worn, loose or adjusted incorrectly, chain will make a "popping" sound as it moves over the sprockets, which indicates chain needs adjusting to prevent sprocket damage. If assistance is needed, contact your local authorized Toro Dealer.

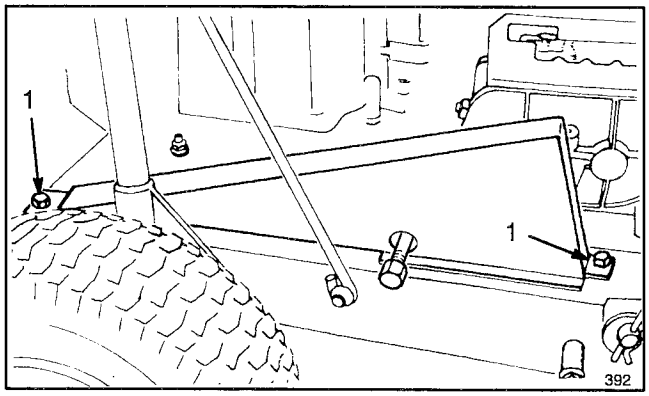


Figure 21

1. Screws

2. Check deflection of drive chain by lifting up and pressing down on chain with moderate pressure at mid span (Fig. 22). There should be 1/8 of an inch (3 mm) total deflection (Fig. 23). If deflection is not as specified, an adjustment is required—steps 3-13.

IMPORTANT: To adjust drive chain, the rider must be tipped on its rear end. 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 RIDER.)

3. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 23.

4. Drain oil from crankcase: refer to Changing Crankcase Oil, page 22.

5. Remove battery from chassis: refer to Activating and Charging Battery, page 12 .

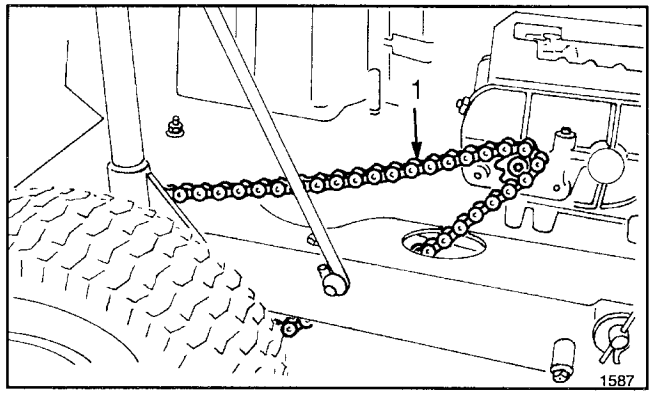


Figure 22

1. Drive chain

6. Shift transmission into 1st gear and engage the parking brake. Tip rider onto its rear end so chassis is on top of 2" x 4" wood blocks. Wheels must be off the floor so axle can be moved.

7. Loosen four flange nuts securing pillow blocks w/differential axle to the rider frame (Fig. 23).

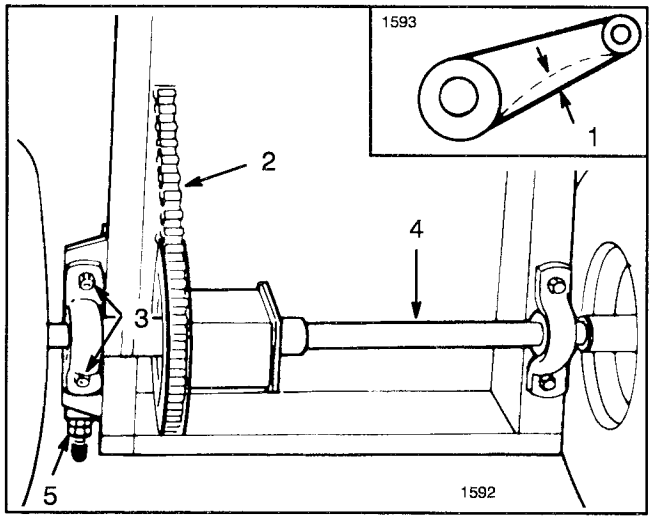


Figure 23

1. 1/8 inch (3mm)
2. Drive chain
3. Locknuts
4. Axle
5. Chain tensioner

8. Loosen rear jam nut on chain tensioner (Fig. 23).

9. Rotate inside nut on chain tensioner until desired chain deflection is attained.

10. Tighten flange nuts securing right pillow block (chain side) to rider frame.

11. Since differential axle must be parallel to rear of chassis, measure distance from center of pillow blocks to rear of chassis (Fig. 23). Difference between the two measurements must not exceed 1/8 inch. If difference exceeds 1/8 inch, differential axle is not parallel with chassis; therefore it must be readjusted.

12. Check the deflection of the drive chain from bottom of rider (refer to step 2).

13. Tip rider back to its normal operating position.

14. Reinstall chain cover.

15. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 12.

16. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 13.

17. Install the battery: refer to Activating and Charging Battery, page 12.

ADJUSTING BRAKE

Adjust the brake assembly if free travel of brake pedal exceeds one inch or if braking power or parking brake is not sufficient.

1. Stop engine and pull wire off spark plug.

2. Remove battery from chassis: refer to Activating and Charging Battery, page 12.

3. Tighten locknut approximately 1/4 turn clockwise (Fig. 24).

4. Check operation of the brake by pushing rider: no brake drag should be evident. If drag is evident, rotate locknut an additional 1/8 turn counterclockwise or until there is not contact.

5. Reinstall the battery: refer to Activating and Charging Battery, page 12.

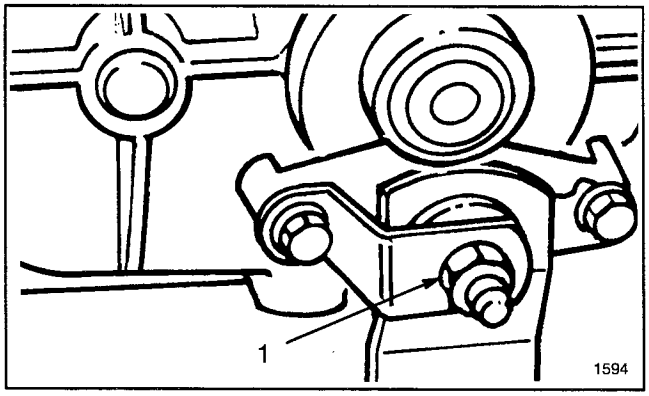


Figure 24

1. Locknut

CHECKING ELECTRICAL CONNECTIONS

1. Make sure wire on starter motor terminal and battery terminals are secured tightly.

2. Make sure two wires are connected to transmission interlock switch.

3. Push module connectors together to ensure a connection.

4. Also check wires that connect to ignition switch to ensure good contact.

5. Check all interlock switches to be sure wires are not broken and connectors are making good contact.

CHECKING SAFETY INTERLOCK SYSTEM

WARNING

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

The interlock switches in the electrical system prevent the engine from starting unless the gear shift is in neutral and blade control is disengaged. In addition, the engine will stop — because of a seat switch — if the operator gets off the seat when blade control is engaged or gear shift is in gear.

To ensure interlock system is operating correctly, check it before each use of the rider. Have the system checked by an Authorized TORO Service Dealer every two years to ensure safe operation of the rider.

1. Check all electrical connections: refer to Checking Electrical Connections, page 31.

2. Move gear shift into neutral.

3. Move blade control into ENGAGE detent. Sit on the seat and rotate ignition key to START. Engine should not start; if it does, the interlock system is malfunctioning, and it must be repaired by an Authorized TORO Service Dealer. If engine does not start, proceed to step 4.

4. Move blade control into DISENGAGED detent. Sit on the seat, engage the parking brake, depress clutch pedal,shift into gear and hold clutch pedal in depressed position. Rotate ignition key to START. Engine should not start; if it does, the interlock system is malfunctioning and must be repaired by an Authorized TORO Service Dealer. If engine does not start, proceed to step 5.

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

PREPARING MOWER FOR STORAGE

1. For long term storage, either drain gasoline from fuel tank or use a fuel additive before storing. To drain gasoline, refer to Draining Gasoline From Fuel Tank, page 23. After fuel is drained, start engine and let it idle until all fuel is consumed and engine stops. Repeat the starting procedure two more times to assure 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 gas tank only if a fuel additive, such as Toro's Stabilizer/Conditioner, is added to gasoline before storing. Toro's 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 additive in recommended quantities as specified on container.

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

2. Remove wire from spark plug and clean area around the plug so foreign matter cannot fall into cylinder when plug is removed. Next, remove plug from cylinder head and pour two tablespoons of engine oil into spark plug hole. Rotate engine by hand to distribute oil on inside of cylinder. Then reinstall spark plug and tighten it to 20 ft-lb. If torque wrench is not used, tighten plug firmly. DO NOT REINSTALL WIRE ON SPARK PLUG.

3. Drain oil from crankcase: refer to Changing Crankcase Oil, page 22. However, do not fill crankcase with oil at this time.

4. Remove battery from chassis: refer to Activating and Charging Battery, page 12. Remove corrosion from battery terminal and wipe any grease and dirt off the battery case. Check level of electrolyte. If level is low, add distilled water to the affected cell. Fill only to the fill ring below the filler cap. Reinstall filler caps.

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

6. Clean underside of mower housing: refer to Cleaning Underside of Mower Housing, page 26.

7. Check condition of blade: refer to Servicing Cutter Blade, page 25.

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 Front Axle Spindles and Wheels, page 21.

10. Remove dust and dirt from air cleaner element: refer to Servicing Air Cleaner, page 22.

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

Note: TORO Re-Kote "touch-up" paint is available from any Authorized TORO Service Dealer. The spray paint dries in minutes to a glossy, factory-finish.

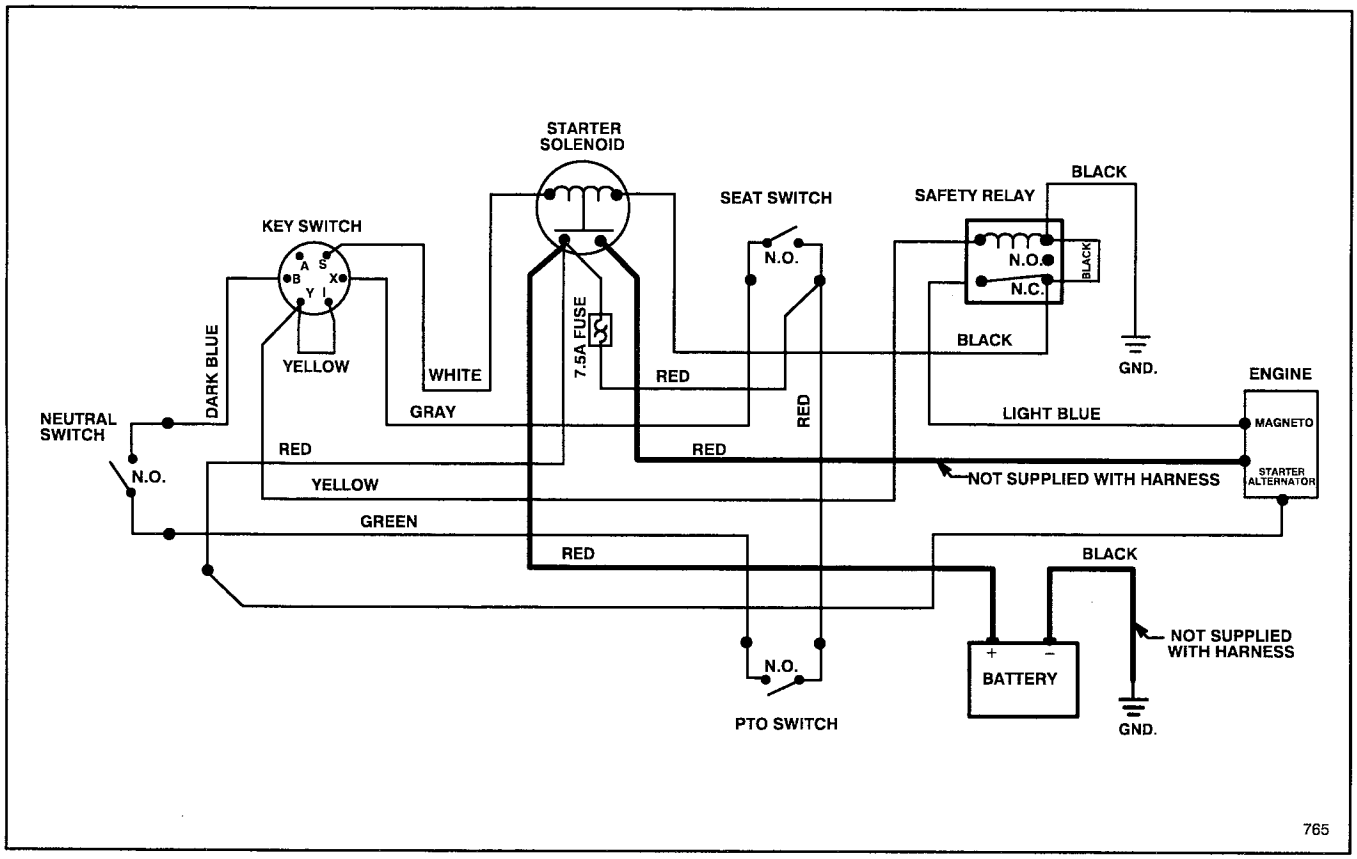
12. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 13.

13. Install the battery: refer to Activating and Charging Battery, page 12. Charge battery for 48 hours to assure full charge.

IMPORTANT: Improper storage or failure to recharge may cause battery failure.

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

WIRING DIAGRAM



TROUBLE SHOOTING

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. Blade control is in ENGAGE detent.	4. Move blade control into DISENGAGE detent.
	5. Spark plug is loose.	5. Tighten plug to 15 ft-lb.
	6. Spark plug 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 ensure good contact.
	11. Carburetor is adjusted incorrectly.	11. Adjust the carburetor.
	12. Air cleaner is dirty.	12. Clean the air cleaner element.
	13. Dirt, water or stale fuel in fuel system.	13. Have rider serviced by Authorized TORO Service Dealer.
	14. Module or switch is inoperative.	14. Have rider serviced by Authorized TORO Service Dealer.
	15. Engine head bolt loose.	15. Tighten head bolt to 200 in–lb.
	16. Operator not in seat.	16. Check seat switch.
Engine does not idle or idles poorly	1. Air cleaner is dirty.	1. Clean air cleaner element.
	2. Cooling fins and air passages under engine blower housing are plugged.	2. Remove obstruction from cooling fins and air passages.
	3. Idle speed is too low. Speed mixture is incorrect.	3. Adjust the carburetor.
	4. Dirt, water or stale fuel is in fuel system.	4. Have rider serviced by an Authorized TORO Service Dealer.
	5. Spark plug is pitted, fouled or damaged in some other way.	5. Install new, correctly gapped spark plug.

TROUBLE SHOOTING

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