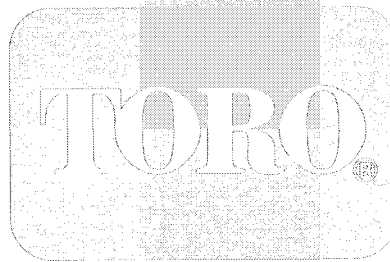


1232
Rear Engine
Rider

Models
56176 & 56177

Specifications
Operating Instructions
Maintenance Information



Wheel Horse®
Operator's Manual

FOR YOUR SAFETY

Two of the most potentially serious types of accidents involving power mowers are contact with the mower blade and overturning the rider/tractor. To minimize the possibility of having these types of accidents, read

and follow these instructions. Also refer to the Safe Operation Practice in this Operator's Manual for other important safety information.

BLADE CONTACT

! DANGER! Mower Blades are Designed to CUT: therefore,

ALWAYS:

- Shut off engine and set parking brake.
- Remove ignition key.
- Allow moving parts to stop before dismounting, servicing, or cleaning unit.

NEVER:

- Perform ANY work on the mower with engine running.
- Mow with other people around, especially children.
- Leave mower unattended.



RIDER/TRACTOR STABILITY

Vehicle stability changes with conditions and is affected by:

- Slope angle and length/bumps/holes, etc.
- Slippery conditions (lawn moisture and length)
- Operator size and position/how loaded/equipment used
- Speed/braking/steering changes
- Operator physical limitations/alertness

ALWAYS:

- Use good judgement when operating the rider/tractor, especially on slopes.
- Maintain the vehicle in good operating condition.
- Be attentive to changing conditions affecting vehicle stability.

NEVER:

- Operate vehicle on extreme slopes.
- Operate vehicle across slopes.
- Abruptly change speed or direction.



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

- | | |
|----------------|---|
| DANGER | <i>This symbol warns of extreme immediate hazards which will result in severe personal injury or death if proper precautions are not taken.</i> |
| CAUTION | <i>This symbol warns of a hazard or unsafe practice which can result in personal injury or death if proper precautions are not taken.</i> |

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

SAFE OPERATION REQUIREMENTS – RIDING VEHICLES

GENERAL

1. This machine is capable of amputating hands and feet and can throw objects that can cause injury and damage. **KNOW** the controls and how to stop machine quickly. **READ THIS OPERATOR'S MANUAL** and instructions furnished with attachments. Read, understand, and obey all safety messages appearing on the machine and in the operator's manual. **LEARN** from your operator's manual and from careful **EXPERI-**

ENCE how to operate your equipment correctly. Know your machine's limitations.

2. Keep hands, feet, hair and loose clothing away from attachment discharge area, underside of mower deck or any moving parts while engine is running.

3. The use of drugs or alcohol while operating any equipment will place your safety in peril. Do not attempt operation of this machine while taking drugs or medication or while drinking alcoholic beverages.

SAFE OPERATING REQUIREMENTS

4. Only responsible persons with mature judgment and proper physical capabilities should be allowed to operate this machine, and only after instruction in the proper use of this equipment.

5. Do not allow children to operate machine.

6. Do not carry passengers.

7. The purpose of this machine is to perform work. This equipment is not intended for sport or recreation.

8. Do not mow when people or pets are around.

9. Clear work area of objects (wire, rocks, etc.) which might be picked up and thrown.

10. Take all possible precautions when leaving vehicle unattended; disengage power-take-off, lower attachments, shift into neutral, set parking brake, stop engine and remove key.

11. Watch out for traffic when crossing or near roadways.

12. Machine and attachments should be stopped and inspected for damage after striking a foreign object. Damage should be repaired before restarting and operating equipment.

13. Do not change engine governor settings or over-speed engine.

14. Wear appropriate protective clothing when operating equipment. Long pants and substantial footwear are essential. Do not operate with bare feet or open sandals.

15. Do not operate equipment unless properly seated with feet on footrests or pedals.

16. Keep your eyes and mind on your machine, attachment and the working area. Do not let other interests distract you.

17. Safety switches are intended to stop or prevent starting of engine to help prevent accidents. OPERATOR SHOULD TAKE PRECAUTIONS AND NOT RELY ENTIRELY ON SAFETY SWITCH(ES). Check switches for proper operation before each use.

18. Care should be used not to touch equipment or attachment parts which may be hot from operation. Muffler and nearby areas may exceed 150° F. Allow cooling to occur before attempting to maintain, adjust or service.

19. Use of stereo headphones, ear protection or other sound altering/dampening devices may limit your ability to hear warning sounds (horns, shouts, etc.).

FUEL / FIRE PRECAUTIONS

20. Handle gasoline with care. It is highly flammable.

21. Use approved gasoline container. Place container out of reach of children.

22. Use gasoline only as a fuel — never as a cleaner.

23. Never remove fuel cap or add gasoline to a running or hot engine, or an engine that has not been allowed to cool for several minutes after running.

24. Never fill fuel tank indoors. Wipe up spilled gasoline.

25. Open doors if engine is run in garage — exhaust fumes are dangerous. Do not run engine indoors.

26. Do not fill machine with gasoline while smoking or when near open flame or sparks.

27. Never store equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark.

28. Allow engine to cool before storing in any enclosure.

29. To reduce fire hazard, keep engine and attachments free of grass, leaves or excessive grease.

30. Battery acid is a poison and can cause burn. Avoid contact with skin, eyes and clothes and protect your face, eyes and clothing when working around the battery.

31. Battery gases can explode. Keep cigarette sparks and flames away from battery.

EQUIPMENT USE AND OPERATION

32. It is recommended that first operation of equipment be done at a slow speed with attachment disengaged. Continue this practice until operator is thoroughly familiar with the controls and has developed operating skills.

33. Disengage all attachment clutches, set parking brake and shift into neutral before attempting to start engine.

34. Disengage power to attachment(s), set parking-brake and stop engine before leaving operator position.

35. Disengage power to attachment(s) and stop engine before making any repairs or adjustments.

36. Disengage power to attachment(s) when transporting or not in use.

37. Disengage attachment clutch before attempting to remove the mower from a hole or other obstruction.

38. Disengage power to attachment(s) before backing. Do not mow in reverse unless absolutely necessary and then only after careful observation of the entire area behind the machine.

39. LOOK behind machine to make sure the area is clear before placing the transmission in reverse and continue looking behind while backing.

SAFE OPERATING REQUIREMENTS

40. Always back up loading ramps and tilt bed trailers.

41. The parking brake is designed to hold machine in place at rest, with engine off. Parking brake will not restrain machine with engine running and transmission engaged.

STABILITY / TIP OVER / TRACTION

42. Know the terrain on which you are operating your equipment. There are areas on which your equipment cannot be safely operated.

43. Avoid operating equipment on hillsides, slopes or rough terrain. **DO NOT** operate machine on hillsides or slopes exceeding 15° (27% grade). If safety is in doubt **STAY OFF THE SLOPE**.

44. Reduce speed and exercise extreme caution on slopes above 10° (18% grade) to prevent tipping or loss of control. Never mow uphill on these slopes — mow downhill only. If a steep hill must be ascended, back up the hill, and drive forward down the hill, keeping machine in gear. If necessary to turn on hill, always turn downhill.

45. Mow up and down the face of slopes greater than 5° (9% grade), never across the face. Be especially cautious when changing directions on all slopes.

46. Operate your machine smoothly and at a ground speed slow enough to ensure complete control at all times. Avoid erratic operation and excessive speed.

47. Sharp turns on any terrain may cause loss of control. Reduce speed and use caution when making sharp turns.

48. Do not stop or start suddenly when going uphill or downhill. Avoid uphill starts. If machine is stopped going up a slope, turn the attachment off and back slowly down the slope keeping the machine in gear. Do not stop or change gears (speed) on slopes.

49. Know the terrain on which you are working. Find hidden obstacles by walking through and inspecting the area prior to operating your equipment in that area. Plainly mark obstacles, such as rocks, ruts or holes and stay well clear of these obstacles when operating.

50. While operating, stay alert for holes, rocks or roots, which may cause damage to equipment or upset. Keep at least 3 ft. away from drop-offs, ditches, creeks, culverts, washouts and public highways.

51. Exercise care when mowing around a fixed object to prevent the equipment or attachment from striking the object. When mowing, never deliberately run over any foreign object.

52. Areas wet with dew, rain or snow will be more slippery than when dry. Areas covered with loose gravel are more slippery than firm, dry ground. Greater stopping distances are required in these slippery areas.

53. Learn to expect changes in operating conditions. Adding or removing attachments or weight to your equipment will make your machine perform differently. Rain, snow, loose gravel, wet grass, etc., change the tractive conditions of the terrain requiring changes in your operating technique, which may include a decision not to operate on that terrain.

54. Use care when pulling loads or using heavy equipment.

- A. Use only approved drawbar hitch points.
- B. Limit loads to those you can safely control.
- C. Do not turn sharply. Use care when backing.
- D. Use counterweight(s) or wheel weights when suggested in operator's manual.

ATTACHMENT USE

55. When using attachments never direct discharge of material toward bystanders nor allow anyone near vehicle while in operation.

56. When using machine with mower:

- A. Mow only in daylight or in good artificial light.
- B. Never make a cutting height adjustment while engine is running if operator must dismount to do so.
- C. Shut engine off and wait for all moving parts to stop before unclogging chute.
- D. Check blade mounting bolts for proper tightness at frequent intervals.

57. Keep hands and feet away from rotating blade(s) underneath mower deck. Never place foot on ground when mower is engaged or when unit is in motion.

58. **DO NOT** operate mower attachment without the chute deflector or complete bagger in place.

59. Exercise care while maneuvering with grass catcher. Front to rear stability may change.

MAINTENANCE

60. Keep all nuts, bolts, fasteners and screws tight to be sure equipment is in safe working condition and check them frequently. Repair or replace worn, damaged, distorted or broken parts as needed.

61. Keep vehicle and attachments in good operating condition and keep safety devices in place and working.

SAFE OPERATING REQUIREMENTS

62. Under normal usage, grass catcher bag material is subject to deterioration and wear. It should be checked frequently to determine need for bag replacement.

63. Use only genuine Toro Wheel Horse replacement parts to ensure that original standards are maintained.

64. Shields, deflectors, switches, blade controls and other safety devices must be in their proper position and functional.

65. Do not operate without muffler or tamper with the exhaust system. Damaged mufflers or spark arresters

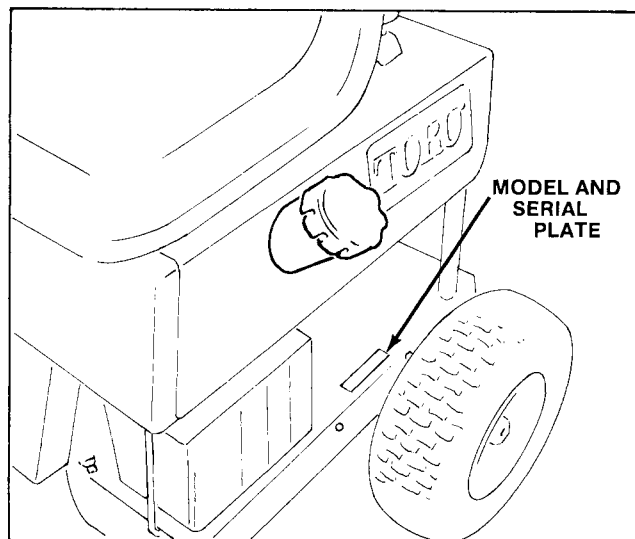
can create a fire hazard. Periodically inspect and replace if necessary.

66. If equipment begins to vibrate abnormally, disengage power to attachments and stop engine at once. Repair any damage before starting or continuing operation.

67. Periodically inspect all shafts, levers, friction devices and other moving parts subject to wear. Make required adjustment or replace these parts if damaged, distorted or broken, or as soon as wear affects the normal operation of the vehicle or attachment. DO NOT operate equipment that is not functioning properly.

VEHICLE IDENTIFICATION NUMBER

Vehicle identification numbers are used to identify your new rider. These numbers should always be referred to when consulting dealer or factory concerning service, parts, or other information you may require. Rider vehicle identification number is located on top right side of rider, near the rear wheel. The engine identification number is stamped into the engine shrouding, just above the spark plug.



Model and Serial Number Location

Rider Identification Number

MOD. _____
SER. _____

Engine Identification Number

Model	_____
Type:	_____
Code:	_____

OWNER REGISTRATION AND WARRANTY

Service and warranty assurance is as important to Toro Wheel Horse as it is to you, the owner. To facilitate warranty service at an Authorized Toro Wheel Horse Dealer, Toro Wheel Horse requires factory registration. A registration card is supplied with each new rider and attachment. **Either you or your dealer must fill in 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 follow to obtain warranty service. Please familiarize yourself with the warranty statement. **All of us at Toro Wheel Horse want you to be satisfied with your Toro Wheel Horse rider; please don't hesitate to contact us for assistance.**

PARTS MANUAL

A separate parts manual is available for your Toro Wheel Horse equipment. To obtain a parts manual, write to:

The Toro Company
8111 Lyndale Avenue South
Minneapolis, MN 55420
Attn: Publications Dept.

BE SURE TO INCLUDE VEHICLE IDENTIFICATION NUMBER OF EQUIPMENT.

SAFETY DECALS AND INSTRUCTIONS



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

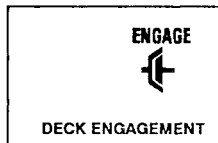
ON DEFLECTOR
(Part No. 54-9220)



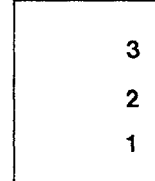
IN FRONT OF SEAT
(Part No. 76-1320)



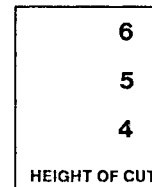
IN FRONT OF SEAT
(Part No. 76-1310)



IN FRONT OF SEAT
(Part No. 76-1300)



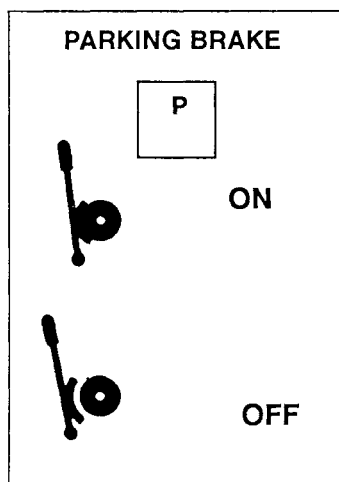
IN FRONT OF SEAT
(Part No. 76-1290)



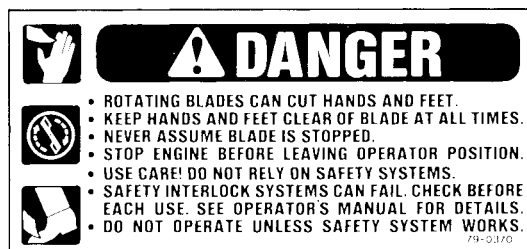
ON LEFT SIDE OF DECK
(Part No. 66-1340)



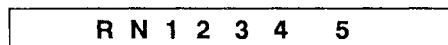
ON REAR OF STEERING TOWER
(Part No. 56-7810)



ON REAR OF STEERING TOWER
(Part No. 79-0370)



ON RIGHT SIDE OF SEAT
(Part No. 76-1280)



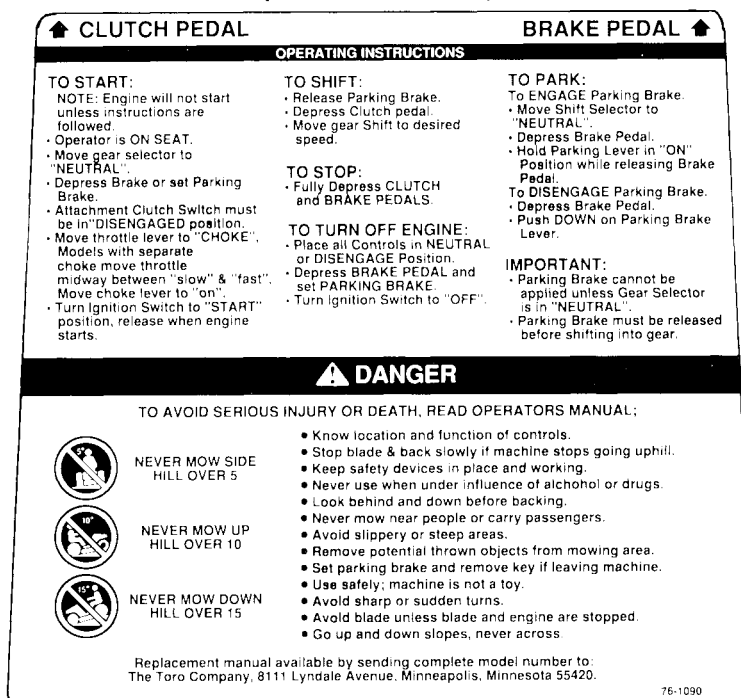
IN FRONT OF SEAT
(Part No. 76-1260)



UNDER GRASS DEFLECTOR
(Part No. 68-3650)



ON FLOOR PANEL
(Part No. 76-1090)



SPECIFICATIONS

1232 REAR ENGINE RIDER – ELECTRIC START, MODEL 56176

1232 REAR ENGINE RIDER – ELECTRIC START, MODEL 56177

12-32 – Briggs & Stratton Engine: IC Series, electric start with alternator, four cycle engine, has output of 12.5 hp (9.0 KW) @ 3600 rpm and 20 ft/lb (38.5 N·m) torque @ 2800 rpm. Displacement is 28.40 cubic inches (465 cc). Crankcase oil capacity is 3 pints (1.42 l) and fuel tank capacity is 5 quarts (4.73 l). Correct spark plug is a Champion RJ-19 LM or equivalent resistor type. Recommended spark plug air gap is 0.030 of an inch (0.762 mm).

Mower Housing: Full floating, front to rear, side to side. 12 gauge (2.64 mm) stamped steel housing with right side discharge. Deck diameter is 31.75 inches (.0806 m). Cast spindle housing with shaft is supported by two double seal ball bearings. Blade spindle pulley is driven by "A" section V-belt from engine crankshaft.

Cutter Blade: Single blade is 31.35 inches (0.796 m) long, made of one piece hardened 7 gauge (2.72 mm) carbon steel.

Blade Tip Speed (model 56176): 17,000 ft./min (86.36 m/s) @ 3300 engine rpm.

Blade Tip Speed (model 56177): 13,400 ft./min (68.07 m/s) @ 2600 engine rpm.

Height-of-Cut Range: Height-of-cut is adjustable to one of six approximate settings from 1-1/2 inches to 4 inches (38 to 101 mm).

Transmission: Transmission fully enclosed, permanently lubricated with five speeds forward and one reverse. Chain drive from transmission to differential is No. 40 chain.

Gear Reductions:

1st – 7.0:1	4th – 2.4:1
2nd – 4.5:1	5th – 2.0:1
3rd – 3.0:1	Rev. – 4.2:1

Differential: Sintered powdered metal bevel gears are enclosed in a permanently lubricated housing. Axle shafts are 3/4 inch (19 mm) dia.

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 @ 3300 Engine rpm:

1st gear	– 1.55 mph (2.50 km/hr)
2nd gear	– 2.41 mph (3.88 km/hr)
3rd gear	– 3.61 mph (5.81 km/hr)
4th gear	– 4.59 mph (7.39 km/hr)
5th gear	– 5.42 mph (8.72 km/hr)
Rev. gear	– 1.81 mph (2.92 km/hr)

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

Engine Controls: Control wire and casing with FAST, SLOW and CHOKE positions. Key and START positions (electric). Both controls mounted in convenient position.

Transmission Control: Hand operated lever on right side of operator with in line shifting pattern.

Traction Clutch: Foot operated pedal on left side. Depressing pedal disengages idler pulley.

Brake Pedal: Foot operated pedal on right side. Depressing pedal engages caliper on 2-1/2 inch (64 mm) diameter disc.

Parking Brake Control: Hand operated lever on rear of steering tower which locks brake pedal and/or clutch pedal.

Cutter Blade Control: Hand operated lever to right of operator releases blade brake and engages clutch.

Height-Of-Cut Control Lever: Hand operated lever to left of operator. Height-of-cut selection is variable in six increments from approx. 1-1/2 to 4 inches (38 to 102 mm).

General Dimensions:

Wheel Base	– 45 in (1.14 m)
Tread Width	– 30 in (.76 m) front outside to outside
Length	– 58 in (1.48 m)
Height	– 38 in (.97 m)
Width	– 40 in (1.02 m)
Weight	– 370 lb (167.8 kg)

Safety Features:

Meets or exceeds ANSI/OPEI B71.1 – 1986 ANSI safety specifications.

Traction drive, blade drive and seat interlock.

Full foot rests.

Convenient, easy to operate controls.

Automatic blade brake.

Stable-wide track and low center of gravity.

Optional Accessories Attachments:

Easy Empty Grass Catcher, Model #59176

Twin Bagger, Model #59184

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	1	Install Seat, page 11.
Wire Tie	1	
Clamp	1	
Seat Spacer	4	
Locknut	4	
Front Wheel Assembly	2	Install Front Wheels, page 11.
Flat Washer	2	
Hub Cap	2	
Cotter Pin	2	
Steering Wheel	1	Install Steering Wheel Assembly, page 11.
Roll Pin	1	
Steering Shaft Cover	1	
Key	1	Use in Ignition Switch.
Capscrew	2	Secure battery cables to battery, page 12.
Wing Nut	2	
Operator's Manual	1	Read manual before operating rider.
Registration Card	1	Fill out and mail to Toro.

SETTING UP INSTRUCTIONS

INSTALL FRONT WHEELS

Note: Grease axle shafts before installing wheels.

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

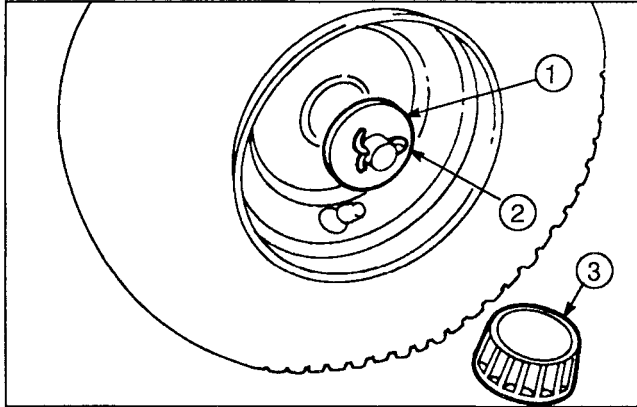


Figure 1

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

3. Install hub caps.
4. Repeat steps 1-3 on opposite side.
5. Check front and rear tires for 12 psi (82.7 kPa) inflation.
6. Lubricate both front wheels w/No. 2 general purpose grease. Pump grease gun until grease comes through bearings. Wipe up any excess grease.

INSTALL STEERING WHEEL ASSEMBLY

1. Position wheels in straight ahead direction and slide steering shaft cover over steering shaft.
2. Slip steering wheel over shaft and line the steering wheel mount hole with the shaft mounting hole (Fig. 2). Toro logo should be readable from operator's position.

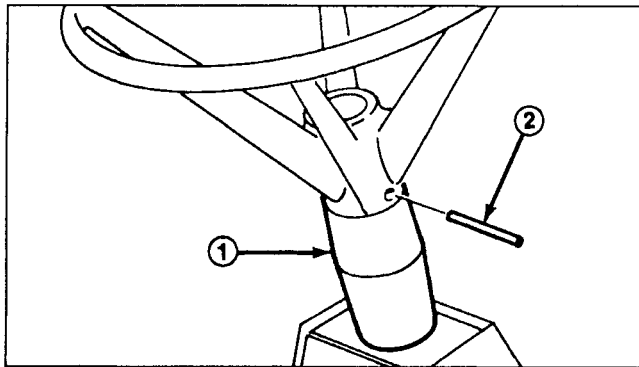


Figure 2

1. Steering shaft cover 2. Roll pin

3. Insert a drift punch partially through the holes to maintain alignment and insert the roll pin in from the opposite side.
4. Drive the roll pin in until it is flush with the outside of the wheel (Fig. 2).

INSTALL SEAT

1. Thread (4) seat spacers into bottom of seat (Fig. 3).
2. Position seat onto seat base, inserting seat switch cable thru slot and spacer studs thru mounting holes (Fig. 3).

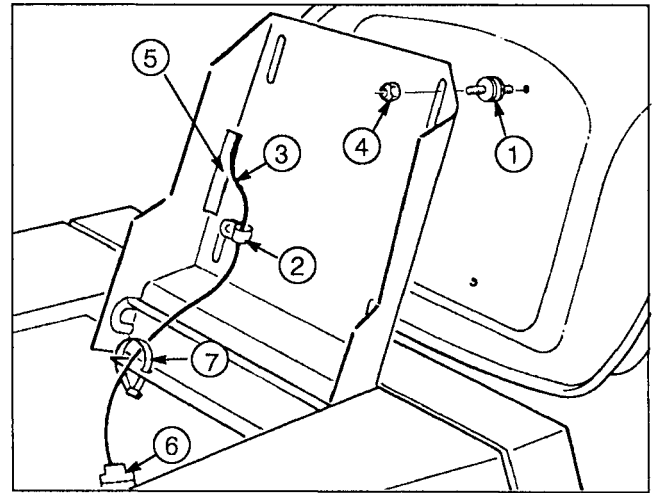


Figure 3

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

3. Slide wire clamp over seat switch wire (Fig. 3).
4. Using left front spacer stud, loosely secure wire clamp and seat to seat base with a locknut (Fig. 3).
5. Mount seat to seat base with (3) remaining locknuts.

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

6. Tighten all locknuts.
7. Insert seat switch connector into wire harness connector.
8. Secure wire harness to front of seat base with wire tie.

BEFORE OPERATING

ACTIVATING AND CHARGING 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 seat forward exposing battery.
2. Remove wing nut securing battery hold downs to rider chassis. (Fig. 4).

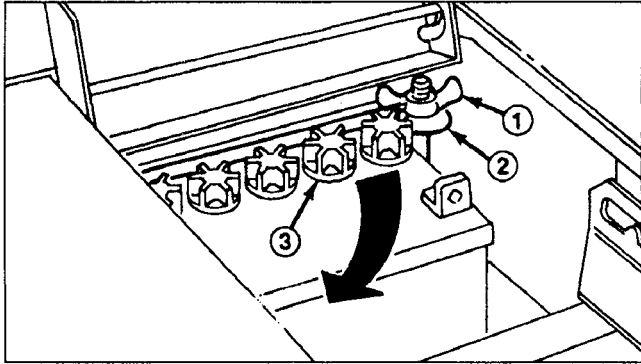


Figure 4

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

3. Lift up on top battery hold down and pivot rearward.
4. Remove battery from chassis and set it aside.
5. Remove filler caps from battery and slowly fill each cell until electrolyte is at the add line.
6. 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).
7. When battery is charged, disconnect charger from electrical outlet and battery posts.
8. Slowly add electrolyte to each cell until level is up to the full line. Reinstall filler caps. Once battery is in service, distilled water only should be added; never add more electrolyte.

IMPORTANT: Do not overfill 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, thru hole in frame (Fig. 5).

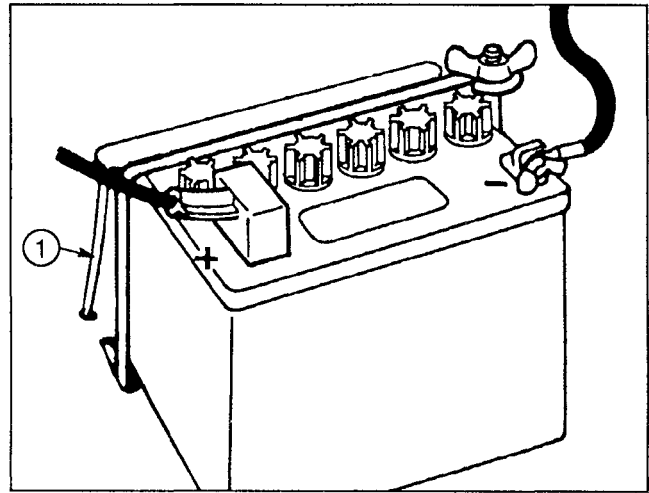


Figure 5

1. Vent tube

10. Reinstall battery hold downs.



WARNING

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

11. Install the positive cable (rubber boot over end) to the positive (+) terminal and the negative cable (black) to the negative (-) terminal of the battery and secure with capscrews and wing nuts. Slide the rubber boot over the positive terminal to prevent a possible short-out from occurring (Fig. 5).

FILL CRANKCASE WITH OIL

The rider is shipped from the factory without oil in the crankcase.

1. Place rider on a level surface.
2. Unscrew and remove the dipstick from the oil fill tube (Fig. 6).
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.

BEFORE OPERATING

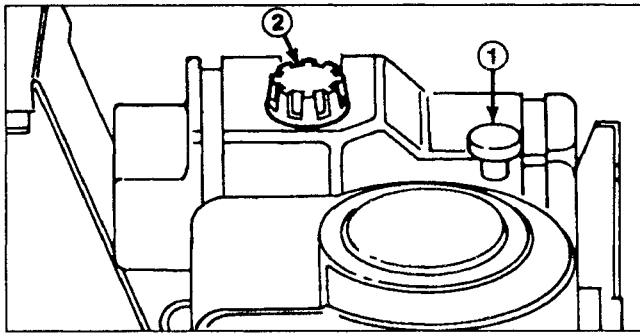


Figure 6

1. Dipstick 2. Fuel tank cap

- A. Above + 40° F (4° C) — Use SAE 30 or 10W- 30.
B. 0° to + 40° F (4° C) — Use 10W-30.
C. Below 0° (-18° C) — Use 5W- 20 or 5W-30.

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 oil after every 25 hours operation. Change the oil more frequently when the engine is operated in dusty or dirty conditions.

FILL 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'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.



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 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 area around fuel tank cap so foreign matter cannot enter tank when cap is removed (Fig. 6).
2. Remove cap from fuel tank and fill tank with unleaded gasoline. Then reinstall 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.

CONTROLS

Gear Shift (Fig. 7) — Transmission has five forward speeds, neutral and reverse. The gear shift lever is located at right side of operator. An interlock switch, which prevents engine from being started when transmission is in gear, is mounted on top of transmission.

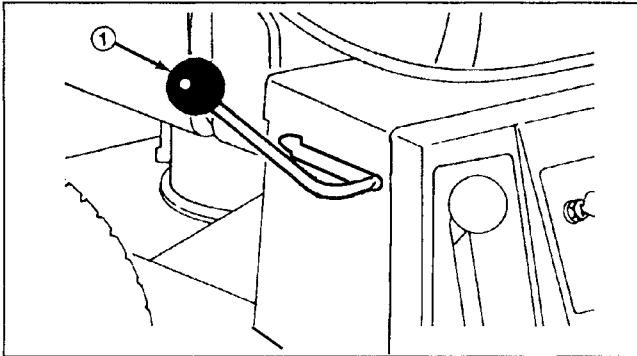


Figure 7

1. Gear shift

Clutch Pedal (Fig. 8) — Used in conjunction with gear shift. Depress clutch pedal fully when shifting gears and whenever brake is used.

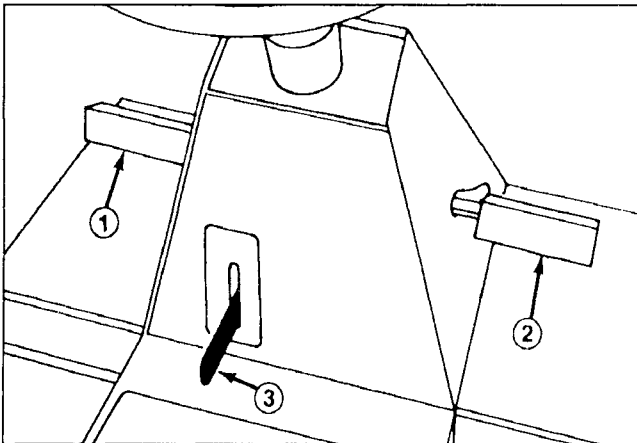


Figure 8

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

Brake Pedal (Fig. 8) — Must be depressed to slow down or stop the rider. When pedal is depressed, a caliper engages the brake disc at side of transmission. Remember to depress clutch pedal when using brake.

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

Parking Brake (Fig. 8) — Parking brake must be used in conjunction with brake pedal. When pedal is depressed, end of parking brake lever holds brake pedal in a depressed position and a caliper engages the brake disc at side of transmission.

Deck Engagement Lever (Fig. 9) — 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 DISENGAGE position only.

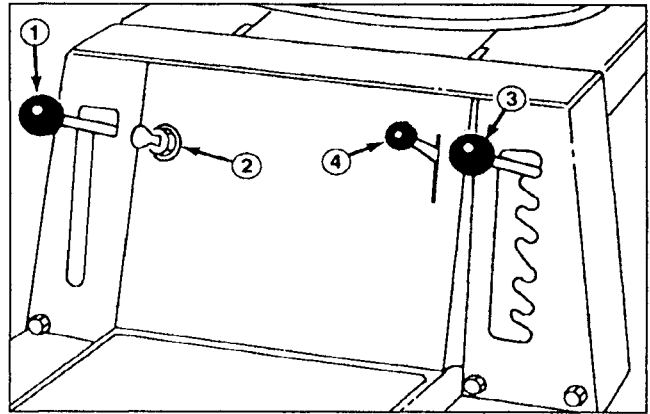


Figure 9

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

Ignition Switch (Fig. 9) — Switch is part of engine ignition system, and it has three positions: OFF, ON and START. Key automatically returns to ON position from START position when released after engine starts.

Height-of-Cut Control (Fig. 9) — Varies the cutting height from approx. 1-1/2 to 4 inches (38 to 102 mm) in six increments.

Throttle Control (Fig. 9) — Throttle control connects to and operates carburetor mounted throttle and choke. Control has three positions: SLOW, FAST and CHOKE. Push control slightly to the left and upward to obtain CHOKE position.

Back-Up Recoil Starter (Fig. 10) — Recoil starter must be used in conjunction with ignition switch. After turning ignition key to ON position, pull recoil starter handle to start engine.

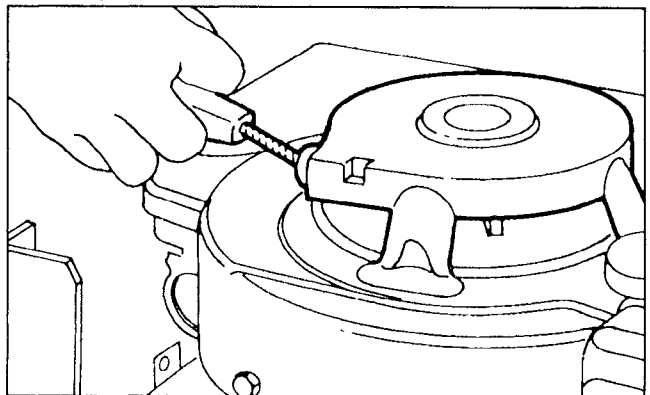


Figure 10

STARTING AND STOPPING INSTRUCTIONS

IMPORTANT: Starter motor can be activated, but rider engine will not start unless deck engagement lever is **DISENGAGED** and shift lever is in **NEUTRAL**. To avoid unnecessary drain on battery, make sure deck engagement lever and shift lever are correctly positioned before attempting to start rider.

START AND OPERATE MACHINE

Note: Operator must be seated to activate seat switch before unit will crank.

1. Sit on seat, shift into neutral (N), move deck engagement lever to **DISENGAGE**.
2. Move throttle control to **CHOKE** position and rotate ignition key to **START**. When engine starts, release key and move throttle control between **FAST** and **SLOW**.
3. Select desired height-of-cut and move deck engagement lever to **ENGAGE**.
4. Release parking brake (if necessary), depress clutch pedal and shift into gear.

RECOIL STARTING

1. Shift into neutral (N), move deck engagement lever to **DISENGAGE**. Lock the parking brake.

2. Move throttle control to **CHOKE** position, and rotate ignition key to **ON**. Stand to left side of rider and pull recoil starter handle out until positive engagement results; then pull handle vigorously to start engine. When the engine starts, immediately move throttle control between **FAST** and **SLOW** positions if choke was used for starting. Get onto the rider from the left side and sit on the seat.

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

3. Select desired height-of-cut and move blade control to **ENGAGE**.
4. Release parking brake, depress clutch pedal and shift into gear.

TO STOP


1. Depress brake and clutch pedals, move throttle control lever to **SLOW** position, move deck engagement lever to **DISENGAGE**, and rotate ignition key to **OFF**.
2. Shift transmission to neutral and engage parking brake.
3. Remove key from ignition switch. Wait for all moving parts to stop before getting off seat.

OPERATING INSTRUCTIONS

BREAK-IN

The engine requires no special break-in other than changing 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 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 transmission to neutral.
2. Move parking brake control upward and release brake pedal.
3. To release the parking brake, depress brake pedal, and 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 1-1/2 to 4 inches (38 to 102 mm).

1. Ensure the deck engagement lever is in **DISENGAGE** position.
2. Move height-of-cut control into desired setting.
3. To engage blade for cutting, move 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 deflector from 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 INSTRUCTIONS

OPERATING PROCEDURE



WARNING

If drive chain comes off sprockets, there are no brakes or traction drive. Check chain adjustment and condition regularly. (Refer to Adjusting Drive Chain, page 23.)

1. Move deck engagement lever into DISENGAGE position.
2. Start the engine: refer to Starting/Stopping Instructions, page 15.

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. Never shift while the machine is moving or without first depressing the clutch pedal; 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 area is clear before backing.

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, 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.

4. To engage blade for cutting, move height-of-cut control to the desired setting. Place throttle in FAST position. Then move deck engagement lever to ENGAGE position.
5. To stop engine, in sequence, depress clutch and brake pedals, move throttle control to SLOW, deck

engagement lever into DISENGAGE, gear shift into neutral, throttle to SLOW, engage parking brake, and rotate key to OFF position after allowing the engine to idle a short period.

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 width of mower housing will not cause scalping, which could result from severe undulations of the ground. In general, however, the cutting height used in the past is probably the best one to use.
2. If the grass is ever allowed to grow slightly longer than normal, or if it contains a high degree of 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. 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 deck and remove the obstruction with a stick.



DANGER

Before removing obstruction from mower housing, move deck engagement lever into DISENGAGE, depress clutch and brake pedals, shift into neutral, turn ignition key to OFF position and set parking brake. Remove wire from spark plug to prevent possibility of accidental starting.

4. When mowing, operate engine at full throttle. This maintains proper blade speed and air flow to facilitate discharge of clippings. Mowing with a lower rpm causes the blade to tear the grass, resulting in poor lawn appearance. Lower rpm also reduces alternator charging efficiency which may affect battery performance.

MAINTENANCE INTERVAL CHART

	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		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.
Check Drive Chain	X	X	X			
Drain Gasoline			X			
Clean Outside of Engine		X	X			
Clean Mower Housing	X		X			
Paint Chipped Surfaces			X			
Remove Rear Wheels and Grease Axles			X			

MAINTENANCE



CAUTION

To prevent accidental starting of the engine, while performing maintenance, shut engine off and remove key from ignition switch. Also, pull wire off spark plug (Fig. 11). Make sure wire does not contact plug accidentally.

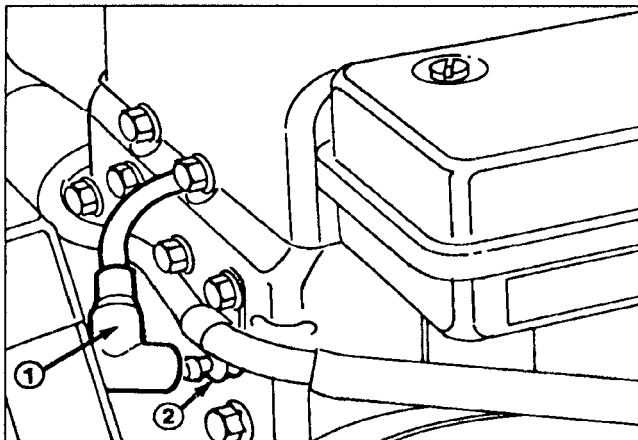


Figure 11

1. Spark plug wire

2. Spark plug

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 (4) grease fittings on spindles and wheels (Fig. 12) with a clean rag. If there is paint on front of fittings, scrape it off.

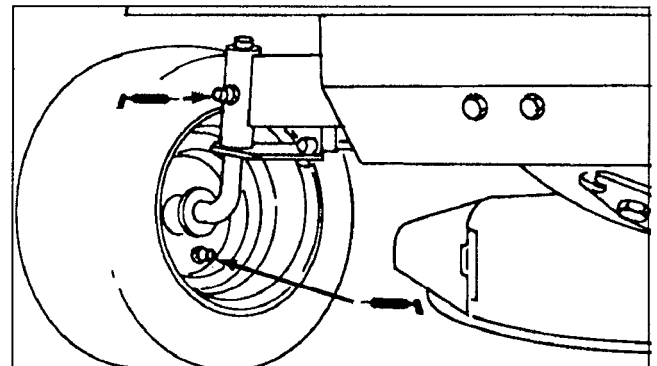


Figure 12

2. Lubricate both axle spindles w/No. 2 general purpose grease (Fig. 12). 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. 12). Pump grease gun until grease oozes. Wipe up any excess grease.

MAINTENANCE

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 onto the rider.

1. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 20.
2. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1-6, page 18.
3. Remove battery from chassis: refer to Activating and Charging Battery, page 12.
4. Shift transmission into 1st gear and engage parking brake.

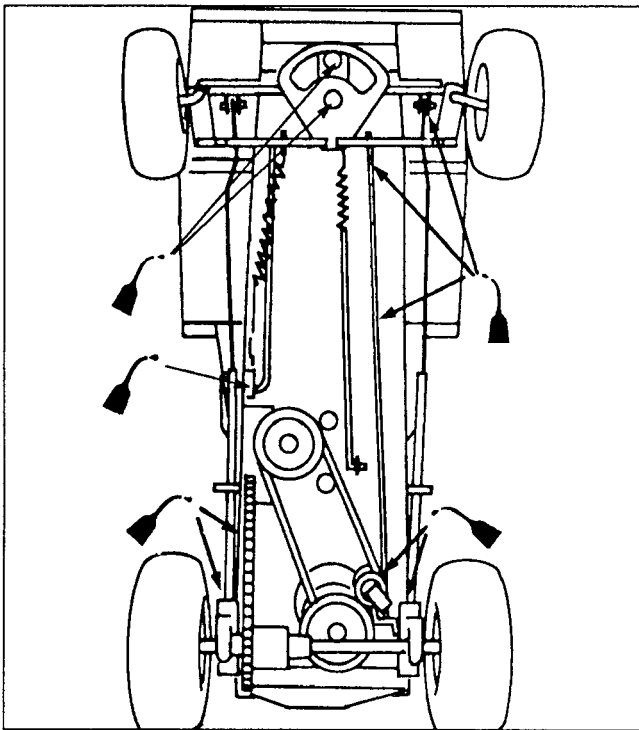


Figure 13

5. Tip rider up and onto its rear end.
6. Remove mower housing from rider chassis: refer to Removing / Installing Cutting Unit, steps 1-5, page 22.
7. Lubricate pivot points in the steering, drive, brake, clutch, and deck engagement linkage with light oil (Fig. 13). Also lubricate mower housing (Fig. 14). Wipe up any excess oil.

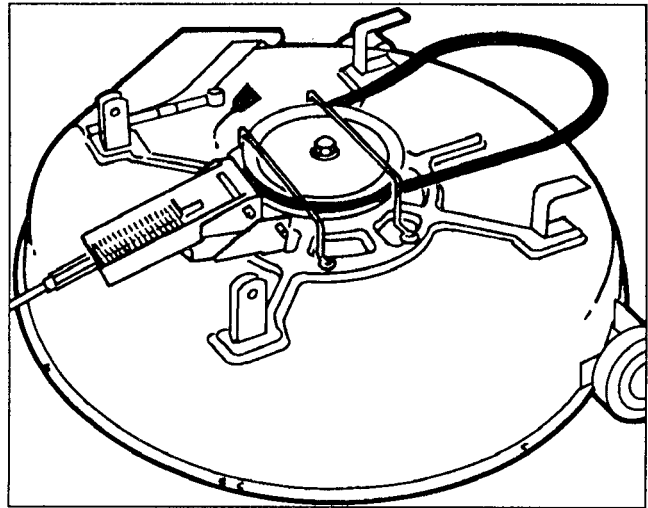


Figure 14

8. Reinstall mower housing onto rider chassis: refer to Removing / Installing Cutting Unit, page 22.
9. Tip rider back to its normal operating position.
10. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 12.
11. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 13.
12. Reinstall the battery: refer to Activating and Charging Battery, steps 12-14, page 12.

CHECK/CHANGE CRANKCASE OIL

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

To check level of oil:

- A. Position rider on level surface.
- B. Clean the area around oil dipstick so foreign matter cannot enter filler hole when dipstick is removed.
- C. Unscrew dipstick and wipe oil off.
- D. Screw dipstick fully into filler neck; then remove it and check oil level on dipstick. If level is low, add only enough oil to raise level to FULL mark. Do not overfill or engine damage may result.
- E. Screw dipstick back into filler neck.

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

To change oil:

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

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- B. Turn engine off and place drain pan below drain plug (Fig.15). Remove drain plug, and allow all oil to flow into drain pan. Reinstall drain plug after oil stops flowing.

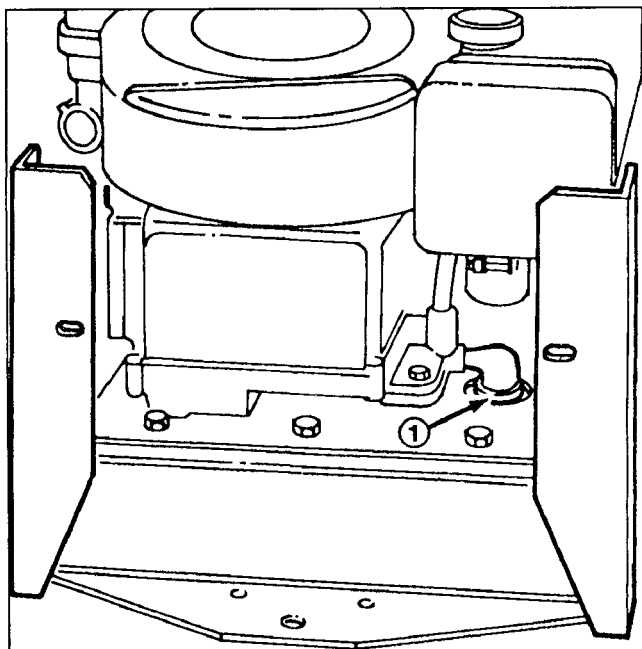


Figure 15

1. Drain plug

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

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

SERVICING AIR CLEANER

The air cleaner element 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 (Fig. 11).
2. Remove knob and air cleaner cover (Fig. 16).
3. Every 25 hours the foam pre-cleaner should be cleaned (Fig. 16). Remove foam pre-cleaner by sliding it off the paper cartridge (Fig. 16).
 - A. Wash foam pre-cleaner in liquid soap and warm water. Rinse thoroughly in clear water.
 - B. Wrap foam pre-cleaner in cloth and squeeze dry.
 - C. Saturate foam in engine oil. Squeeze to remove excess oil.
4. The paper air cleaner cartridge should be replaced every 100 hours. Remove (1) one nut from top of paper cartridge (Fig. 16).

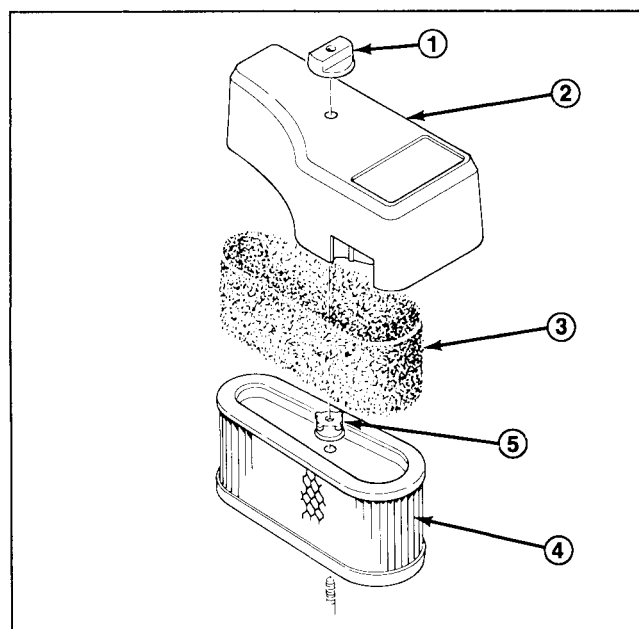


Figure 16

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

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

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

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

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

REPLACING SPARK PLUG

Since air gap between 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. Recommended air gap is 0.030 of an inch (0.762 mm). Correct spark plug to use is:

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 (Fig. 17).

MAINTENANCE

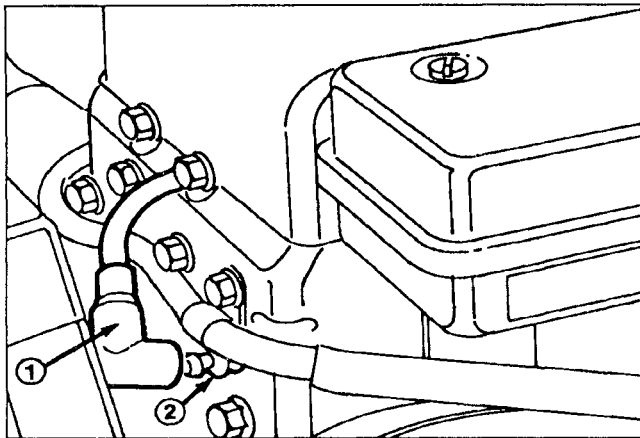


Figure 17

1. Spark plug wire 2. Spark plug

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. 18). Install correctly gapped spark plug w/gasket seal, and tighten plug to 15 ft-lb (20.4 N·m).

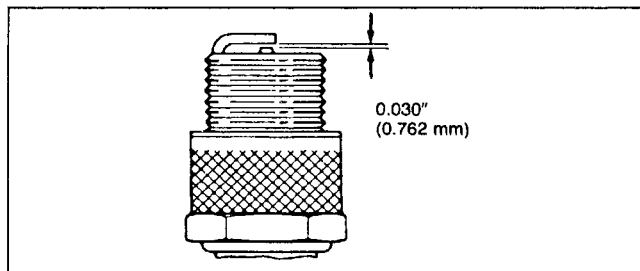


Figure 18

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 memorable place so it is not lost.

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 pipe when handling gasoline.

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

1. Clean area around fuel tank cap so foreign matter cannot enter filler hole when cap is removed. Next, remove cap from 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 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, an adjustment is also necessary. Before the carburetor is adjusted, ensure that throttle control is operating properly.

1. Remove the screws holding air cleaner in place and lift complete air cleaner assembly off carburetor (Fig. 19).

2. Move throttle control lever to CHOKE position and check the position of the choke butterfly; it should be fully closed (Fig. 19).

3. Move throttle control lever to FAST position. The butterfly should be in the fully open position (Fig. 19).

4. If the choke butterfly is positioned as described in steps 2 and 3, replace the air cleaner assembly and continue operation.

If either the choke butterfly does not close or is not fully open in the FAST position, adjust the remote control lever as follows.

1. Place remote control lever in FAST position.

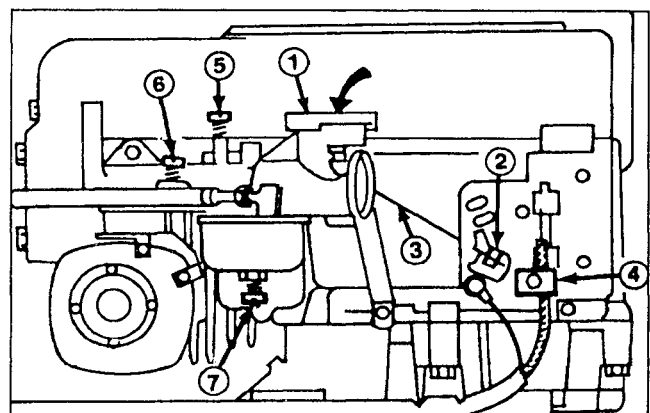


Figure 19

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

5. Idle valve
6. Idle speed adj. screw
7. Needle valve

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2. Loosen the throttle cable clamp screw (Fig. 19) and move the control cable casing and wire until the throttle lever touches choke link.

3. Tighten the cable clamp and assemble the air cleaner assembly to the carburetor.

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, throttle control must be checked for proper operation: refer to Adjusting Throttle/Choke Control, page 20.

1. Gently turn idle mixture valve clockwise until it **just** closes (Fig. 20). Turning valve in too far may cause damage.

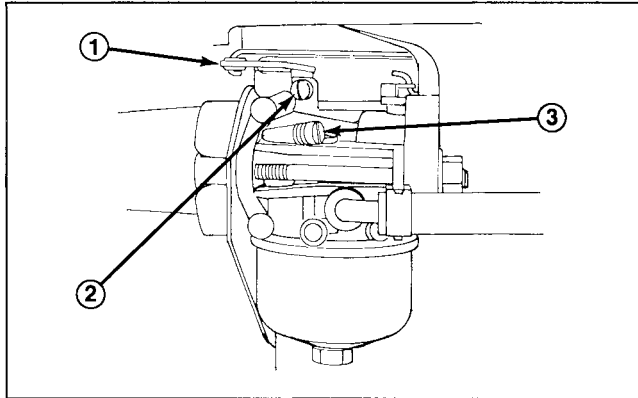



Figure 20

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. 20) counterclockwise and hold against idle speed adjusting screw (Fig. 20) 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

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. 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. (ALL BAGGING ATTACHMENTS MUST BE REMOVED BEFORE TIPPING UNIT.)

2. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 20.

3. Drain oil from crankcase: refer to Changing Crankcase Oil, page 18.

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, blade stiffener and blade (Fig. 21).

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.

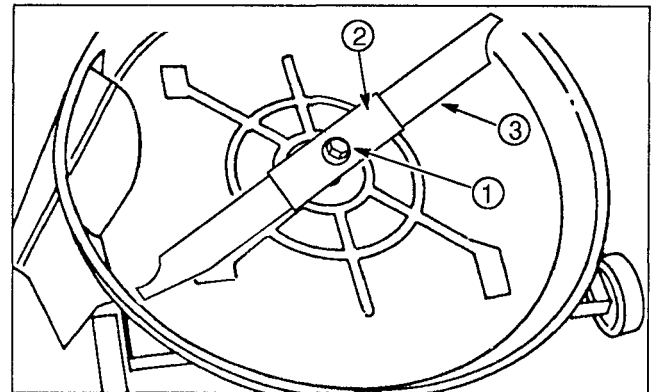


Figure 21

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

7. Using a file, sharpen cutting edge at both ends of the blade (Fig. 22).

MAINTENANCE



CAUTION

Check cutter blade every time rider is tipped on end. If blade bolt holding blade is loose, tighten it to 45-60 ft-lb (61-81 N·m). If blade or sail (Fig. 22) 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 blades to ensure safety and best performance. NEVER USE WILL-FIT REPLACEMENT BLADES.

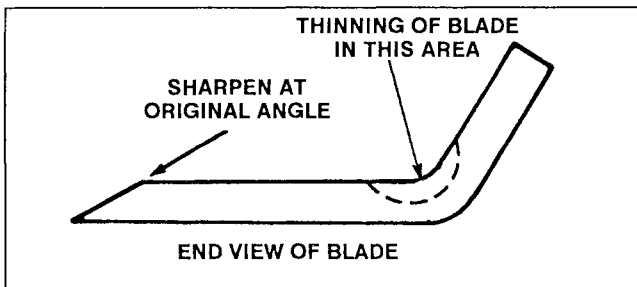


Figure 22

IMPORTANT: Sharpen top side of the blade and maintain 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 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 more material off cutting edge of the blade. Continue to file and check the blade until it is balanced.

9. In sequence, install blade, blade stiffener, washer and blade bolt (Fig. 21). 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 Check Crankcase Oil Level, 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 and efficient grass bagging, underside of mower housing and inside of

discharge area must be kept clean. Periodically apply a coat of paste wax on inside of mower housing and grass deflector. This will retard rust and prevent dirt and grass from sticking on inside of housing.

1. Make sure engine is shut off. Then pull wire off spark plug.

IMPORTANT: To clean underside of mower housing, 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 onto the rider. (ALL BAGGING ATTACHMENTS MUST BE REMOVED BEFORE TIPPING UNIT.)

2. Drain gasoline from fuel tank: refer to Draining Gasoline From Fuel Tank, page 20.

3. Drain oil from crankcase: refer to Changing Crankcase Oil, steps 1-6, page 18.

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 unit onto its rear end.

6. Remove grass clippings and dirt sticking to inside of housing by spraying with a garden hose. Scrape out any grass and dirt not removed; then spray housing again.

7. Since rider is tipped on end, check condition of blade (Fig. 21).

8. Tip rider back to its normal operating position.

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

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

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

REMOVING / INSTALLING CUTTING UNIT

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

2. Set height-of-cut control to lowest setting and loosen belt guides near engine pulley. Remove belt from engine pulley (Fig. 23).

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

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

5. Reinstall in reverse order.

MAINTENANCE

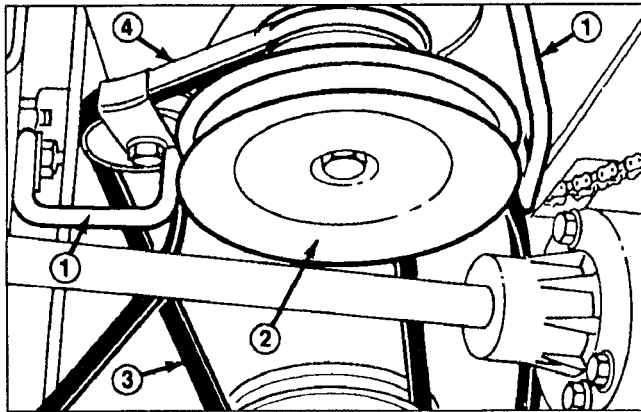


Figure 23

- | | |
|------------------|------------------------|
| 1. Belt guides | 3. Blade drive belt |
| 2. Engine pulley | 4. Traction drive belt |

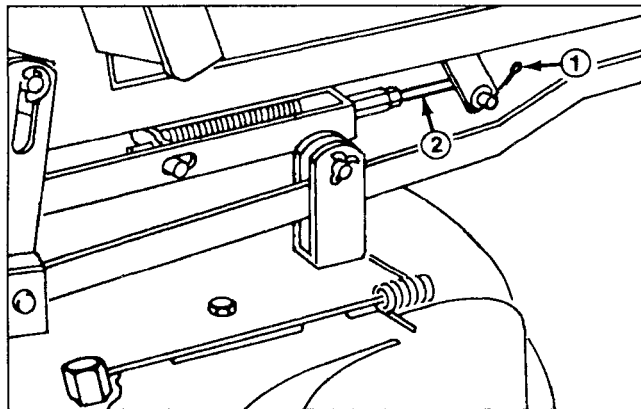


Figure 24

- | | |
|---------------|-------------------|
| 1. Cotter pin | 2. Adjustment rod |
|---------------|-------------------|

REPLACING BLADE DRIVE BELT

1. Lock parking brake and remove wire from spark plug.
2. Remove cutting unit: refer to Removing/Installing Cutting Unit, page 22.
3. Loosen and remove (1) mounting screw securing each belt guide to cutting unit. Pivot belt guides away from spindle pulley and remove belt. Visually inspect belt for wear or damage (Fig. 23).
4. Install new belt if needed and reinstall belt guide.
5. Reinstall cutting unit: refer to Removing/Installing Cutting Unit, page 22.

ADJUSTING BLADE DRIVE BELT

1. Set height-of-cut lever in lowest setting and deck engagement lever to ENGAGE.
2. Remove cotter pin from adjustment rod (Fig. 24).
3. Rotate adjustment rod until there is 0.060 inch (1.5 mm) or less between end of slot in engagement bracket and outer diameter of pin (Fig. 25).

Note: Adjustment rod is a left hand thread.

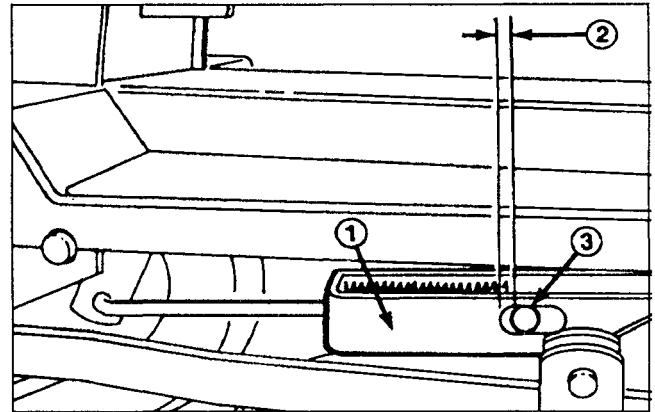


Figure 25

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

REPLACING TRACTION DRIVE BELT

1. Remove cutting unit: refer to Removing/Installing Cutting Unit, page 22.
2. Remove belt guides from transmission pulley and loosen belt guides at engine pulley. Loosen locknut and remove belt retainer from idler pulley.
3. Pull idler arm to release belt tension and remove drive belt. Inspect belt for damage or wear and install new belt if needed.
4. Replace belt guides for transmission pulley and retighten belt guides on engine pulley. Install belt retainer on idler pulley positioned toward rear as shown in Figure 23.

IMPORTANT: Belt retainer must be installed toward rear per step 4 or rider may creep forward in neutral.

5. Reinstall cutting unit: refer to Removing/Installing Cutting Unit page 22.

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 thereafter.

IMPORTANT: If chain is worn, loose or adjusted incorrectly, chain could come off sprockets, resulting in no brakes or traction drive. If assistance is needed, contact your local authorized Toro Dealer.

1. Check deflection of drive chain by lifting up on chain with moderate pressure at mid span (Fig. 26). There should be 1/8 of an inch (3 mm) deflection (Fig. 26). If deflection is not as specified, an adjustment is required — steps 2-6.

MAINTENANCE

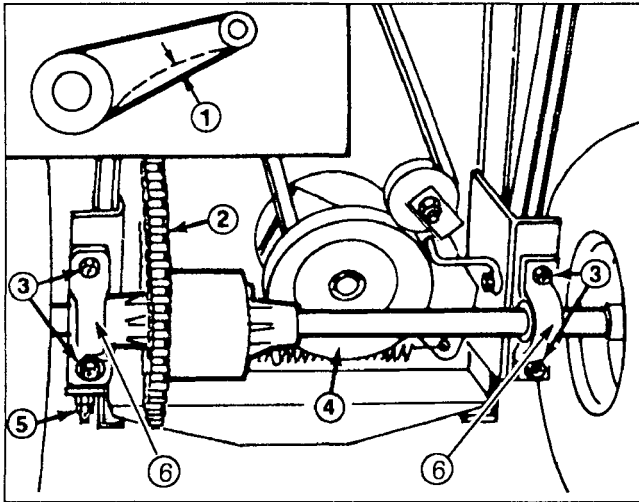


Figure 26

- | | |
|--------------------|----------------------|
| 1. 1/8 inch (3 mm) | 4. Differential axle |
| 2. Drive chain | 5. Chain tensioner |
| 3. Flange nuts | 6. Pillow blocks |

2. Loosen four flange nuts securing pillow blocks w/ differential axle to the rider frame (Fig. 26).

3. Tighten nut on chain tensioner until desired chain deflection is attained.

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

5. Since differential axle must be parallel to rear of chassis, measure distance from center of pillow blocks to rear of chassis (Fig. 26). Difference between the two measurements must not exceed 1/4 inch (6 mm). If difference exceeds 1/4 inch (6 mm), differential axle is not parallel with chassis; therefore left side must be repositioned to attain desired dimension. Tighten locknuts securing left pillow block to rider frame.

6. Check the deflection of the drive chain from bottom of rider.

Note: Do not over-tension chain as excess chain differential may occur.

ADJUSTING FRONT WHEEL ALIGNMENT

1. To align front wheels, loosen jam nut and turn tie rod until centerline distance across front of wheels (d'') is .06 inch (1.5 mm) to .25 inch (6.3 mm) less than centerline distance across rear of front wheels (d') (Figs. 27 & 28).

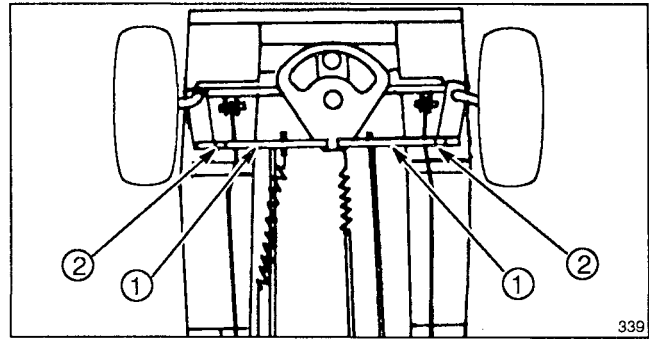


Figure 27

1. Tie rod 2. Jam nut

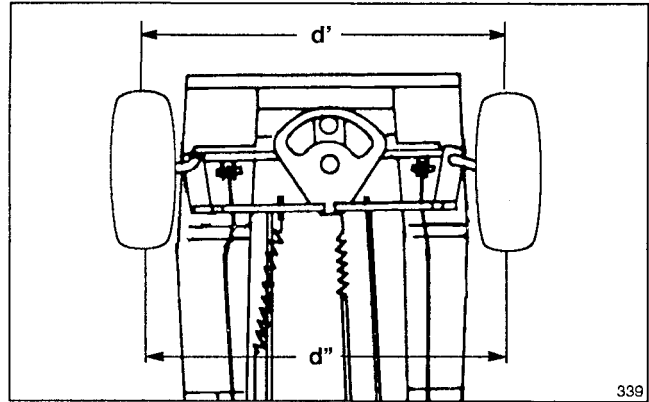


Figure 28

2. Retighten jamnuts.

ADJUSTING BRAKE

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

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

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

3. Tighten locknut approximately 1/4 turn clockwise (Fig. 29).

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 counter-clockwise or until there is no contact.

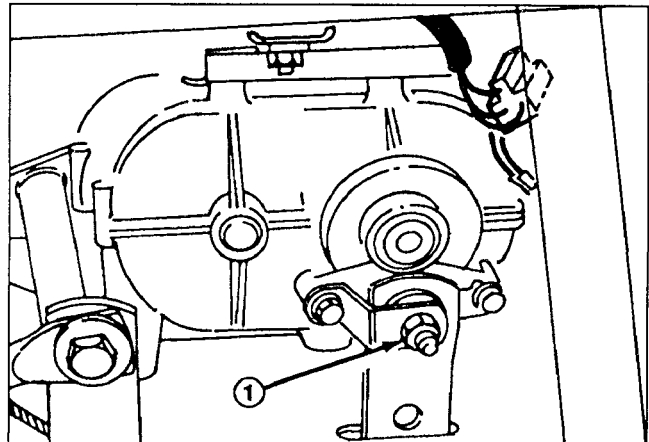


Figure 29

1. Locknut

MAINTENANCE

LEVELING CUTTING UNIT

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

1. Place rider on level surface, lock parking brake, shut off engine and remove key from ignition switch.
2. Raise seat or remove left side panel from rider.
3. Place height-of-cut lever in number 3 position and position cutter blade at a right angle to direction of rider travel.
4. Measure the blade tip height at one end of blade, rotate blade 180° and measure same blade tip at opposite side of rider. Measurement should be within 1/8 inch (3 mm) of one another.

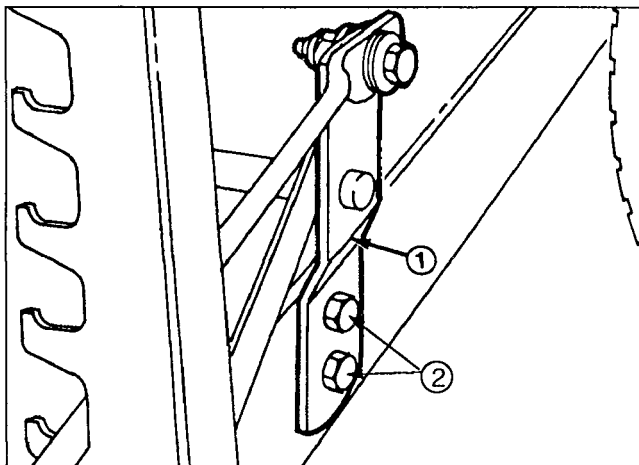


Figure 30

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

5. If blade tip height is not within 1/8 inch (3 mm), level cutting unit by loosening height-of-cut support bracket capscrews and raising or lowering the bracket (Fig. 30).

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

ADJUSTING GEAR SHIFT NEUTRAL POSITION

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

1. Raise seat to expose gear shift guide.
2. Loosen (2) capscrews mounting gear shift guide to transmission (Fig. 31).
3. Move guide so neutral position aligns with gear shift lever when in neutral position.
4. Tighten capscrews.

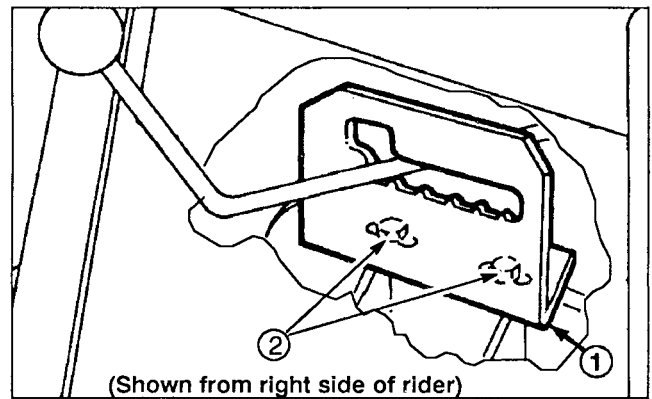


Figure 31

1. Gear shift guide 2. Capscrews

CHECKING SAFETY INTERLOCK SYSTEM

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

1. Move gear shift into neutral.
2. Move deck engagement lever into ENGAGE. Sit on the seat and rotate ignition key to START. Engine should not crank; but if it does, the interlock system is malfunctioning and it must be repaired by an Authorized TORO Service Dealer. If engine does not crank, proceed to step 3.
3. Move deck engagement lever into DISENGAGE. Sit on the seat, depress the brake and clutch pedals, engage the parking brake and shift into gear. Rotate ignition key to START. Engine should not crank; but 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 gear shift into neutral, deck engagement lever into DISENGAGE and ensure parking brake is engaged. Rotate ignition key to START. Engine should start and continue to run. Then engage deck engagement lever 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 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 fuel tank or use a fuel additive before storing. To drain gasoline, refer to Draining Gasoline From Fuel Tank, page 20. 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 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 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 15 ft-lb (20.4 N·m) 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 18. 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 FULL line on side of battery. 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 22.

7. Check condition of blade: refer to Servicing Cutter Blade, page 21.

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 17.

10. Remove dust and dirt from air cleaner element: refer to Servicing Air Cleaner, page 19.

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

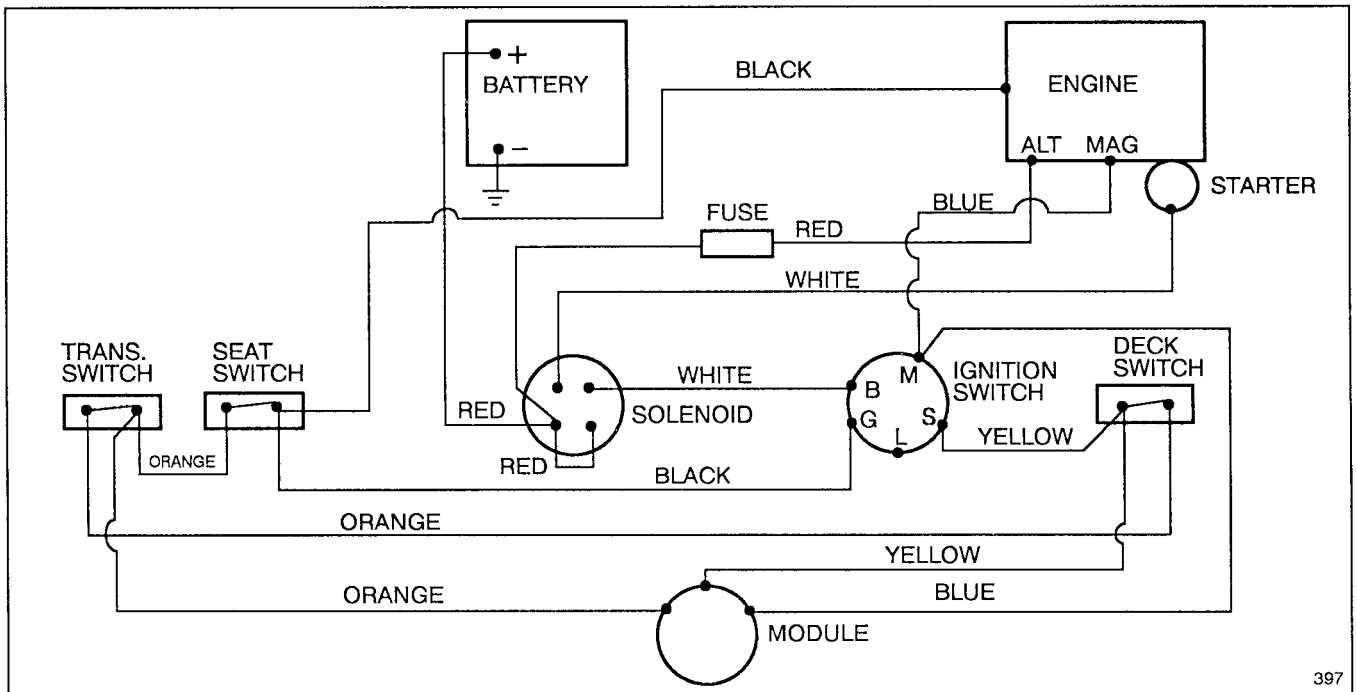
Note: TORO Re-Kote "touch-up" paint is available from any Authorized TORO Service Dealer.

12. Fill crankcase with oil: refer to Check Crankcase Oil Level, page 12.

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

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



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TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine does not start, starts hard, loses power, or fails to keep running.	<ol style="list-style-type: none"> 1. Gas tank is empty. 2. Battery is dead. 3. Transmission is in gear. 4. Deck engagement lever is in ENGAGE 5. Spark plug is loose. 6. Wire is loose or disconnected from spark plug. 7. Spark plug gap is incorrect. 8. Spark plug is pitted, fouled, or defective in some other way. 9. Wrong spark plug is used. 10. Electrical connections are loose. 11. Carburetor is adjusted incorrectly. 12. Air cleaner is dirty. 13. Vent hole in fuel tank cap is plugged. 14. Dirt, water, or stale fuel in fuel system. 15. Module or switch is defective. 	<ol style="list-style-type: none"> 1. Fill fuel tank with gasoline. 2. Charge the battery. 3. Shift transmission into neutral. 4. Move deck engagement lever into DISENGAGE. 5. Tighten plug to 15 ft-lb (20.4 N·m). 6. Install wire on spark plug. 7. Set gap between electrodes at 0.030 of an inch (0.76 mm). 8. Install new, correctly gapped spark plug. 9. Install correct spark plug. 10. Check electrical system to assure good contact. 11. Adjust the carburetor. 12. Clean the air cleaner element. 13. Clean or replace the fuel cap. 14. Have rider serviced by an Authorized TORO Service Dealer. 15. Have rider serviced by an Authorized TORO Service Dealer.
Engine does not idle or idles poorly.	<ol style="list-style-type: none"> 1. Air cleaner is dirty. 2. Idle speed is too low or high speed mixture is incorrect. 3. Dirt, water, or stale fuel is in the fuel system. 4. Spark plug is pitted, fouled or defective in some other way. 	<ol style="list-style-type: none"> 1. Clean air cleaner element. 2. Adjust the carburetor. 3. Have rider serviced by an Authorized TORO Service Dealer. 4. Install new, correctly gapped spark plug.

TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine loses power.	<ol style="list-style-type: none"> 1. Oil level in crankcase is low. 2. Cooling fins and air passages under engine blower housing are plugged. 3. Engine load is excessive. 4. Air cleaner is dirty. 5. Dirt, water, or stale fuel is in fuel system. 6. Carburetor is adjusted incorrectly. 7. Spark plug is pitted, fouled or defective in some other way. 	<ol style="list-style-type: none"> 1. Add oil to crank case. 2. Remove obstruction from cooling fins and air passages. 3. Shift into lower gear to reduce load. 4. Clean air cleaner element. 5. Have rider serviced by an Authorized TORO Service Dealer. 6. Adjust the carburetor. 7. Install new, correctly gapped spark plug.
Engine over heats.	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 N·m). 6. Replace drive pulley.
Blade does not rotate.	<ol style="list-style-type: none"> 1. Blade drive belt is worn, loose or broken. 2. Blade drive belt is off pulley. 	<ol style="list-style-type: none"> 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.	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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

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MAINTENANCE RECORD

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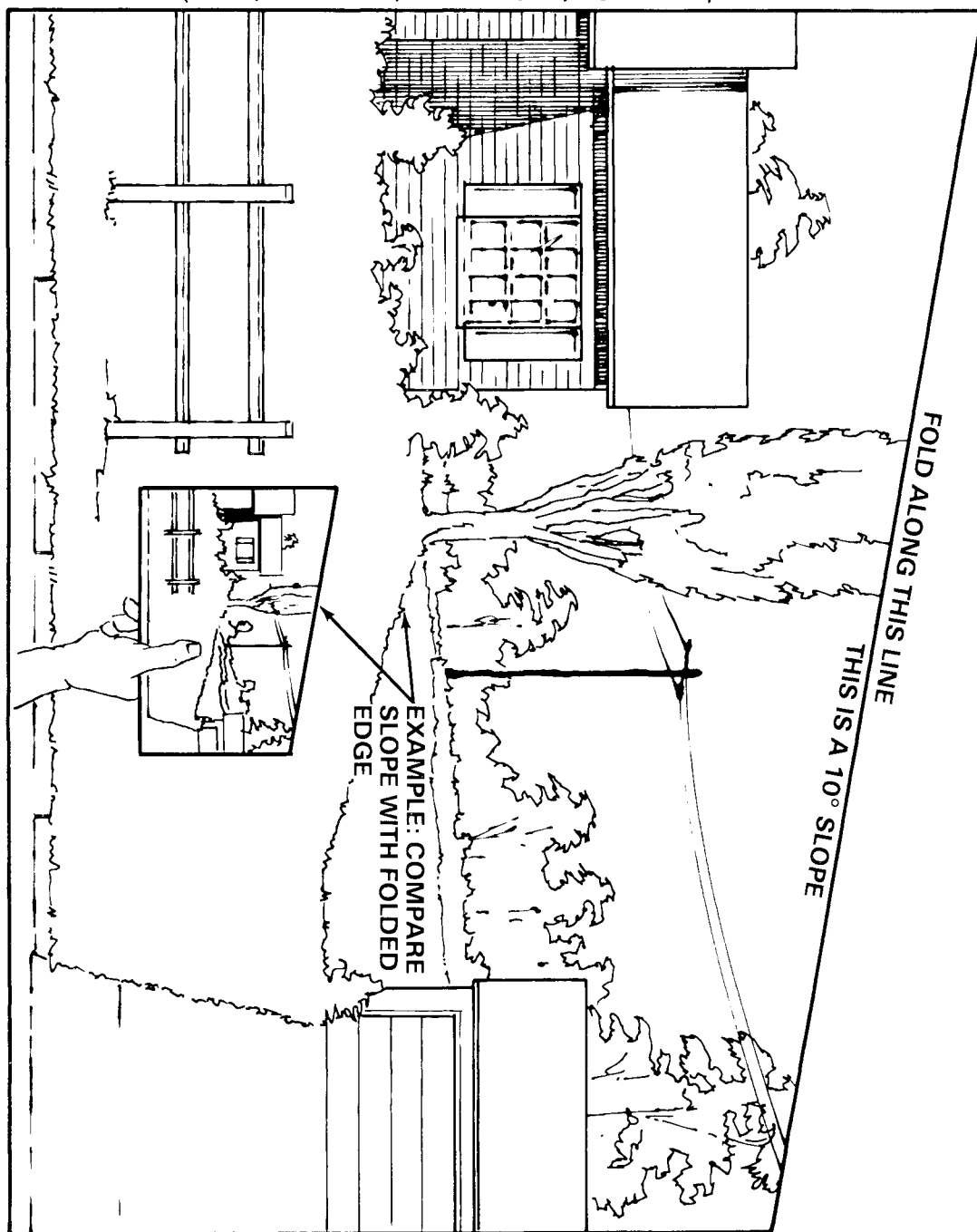
MAINTENANCE RECORD

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10° SLOPE CHART

Read all safety instructions on pages 3-6

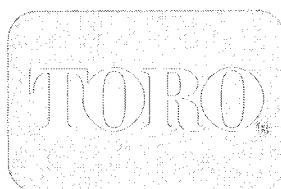
ALIGN THIS EDGE WITH A VERTICAL SURFACE
(TREE, BUILDING, FENCEPOST, POLE ETC.)



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