ENGLISH FORM NO. 3320-767

TORO®

MODEL NO. 56176 & 56177 - 2000001 & UP

OPERATOR'S MANUAL

TORO WHEEL HORSE®

1232 REAR ENGINE RIDER

ENGLISH

TABLE OF CONTENTS

⚠ CAUTION

This symbol marks important instructions concerning your personal safety. To avoid injury, read and follow these instructions carefully.

When the manual refers to the left or right side of the vehicle, it means your left or right when sitting on the tractor seat.

SAFE OPERATION PRACTICES—RIDING VEHICLES

⚠ WARNING

Engine exhaust contains carbon monoxide which is an odorless, deadly poison. Carbon monoxide is also known to the State of California to cause birth defects. Do not run engine indoors or in an enclosed area.

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 EXPERIENCE 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.

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 (65°C). 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.

SAFE OPERATION PRACTICES—RIDING VEHICLES

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 parkingbrake 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.

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/TIPOVER/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. (1 m) away from drop-offs, ditches, creeks, culverts, washouts and public highways.

SAFE OPERATION PRACTICES—RIDING VEHICLES

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.

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.

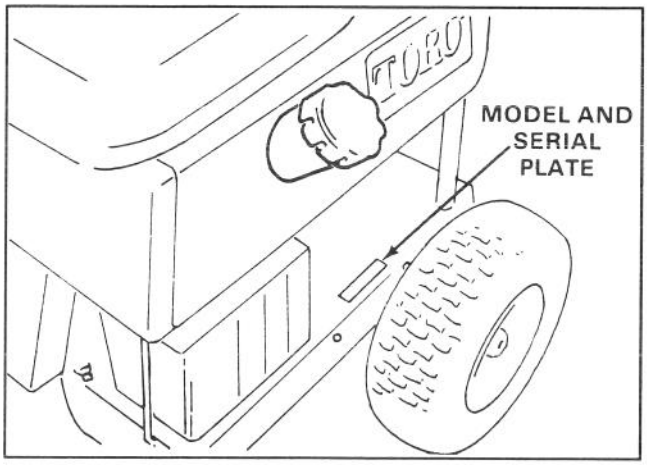
67. Periodically inspect all shafts, levers, friction devices and other moving parts subject to wear. Make required adjustment or replace these parts if damaged, distorted or broken, or as soon as wear affects the normal operation of the vehicle or attachment. DO NOT operate equipment that is not functioning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

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



Model and Serial Number Location

Rider Identification Number

Model _____

Serial No. _____

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. 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 the required information and mail the card to TORO Wheel Horse.**

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

1232 SPECIFICATIONS

ENGINE:

12-32 Briggs & Stratton - IC Quiet 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 Nm) 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). The 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 (.806 m). Cast spindle housing with shaft is supported by two double-seal ball bearings. Blade spindle pulley is driven by an "A" section V-belt from the engine crankshaft.

CUTTER BLADE:

Single blade is 31.35 inches (0.796 m) long, made of one-piece hardened 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 inch to 3-1/2 inches (25 to 89 mm).

TRANSMISSION:

The transmission is fully enclosed, permanently lubricated with five speeds forward and one reverse. The chain drive from the transmission to the 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) diameter.

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:	1.22 mph (1.96 km/hr)
2nd gear:	1.90 mph (3.05 km/hr)
3rd gear:	2.84 mph (4.57 km/hr)
4th gear:	3.62 mph (5.82 km/hr)
5th gear:	4.27 mph (6.87 km/hr)
Rev. gear:	1.43 mph (2.30 km/hr)

STEERING:

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

ENGINE CONTROLS:

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

TRANSMISSION CONTROL:

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

TRACTION CLUTCH:

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

BRAKE PEDAL:

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

PARKING BRAKE CONTROL:

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

CUTTER BLADE CONTROL:

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

HEIGHT-OF-CUT CONTROL LEVER:

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

GENERAL DIMENSIONS:

Wheel Base:	45 in (1.14 m)
Tread Width:	30 in (0.76 m) front outside to outside
Length:	58 in (1.48 m)
Height:	38 in (0.97 m)
Width:	40 in (1.02 m)
Weight:	370 lb (167.8 kg)

1232 SPECIFICATIONS

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
Recycler Kit, Model #59167

SETTING UP INSTRUCTIONS

INSTALL THE FRONT WHEELS

Note: Grease the axle shafts before installing wheels.

1. Install the wheel onto the axle.

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

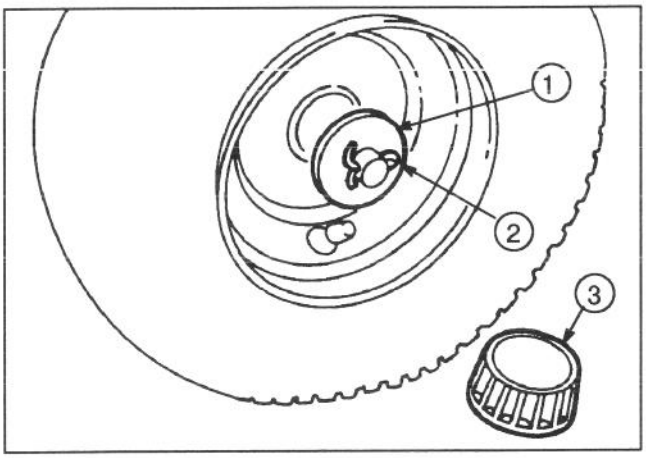


Figure 1

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

3. Install the hub caps.

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

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

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

INSTALL THE STEERING WHEEL ASSEMBLY

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

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

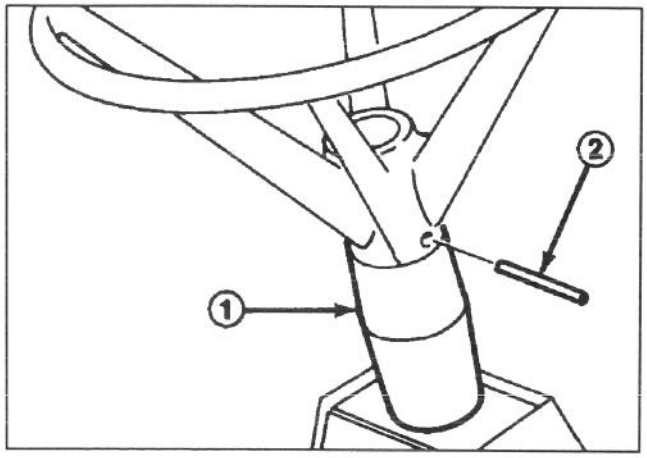


Figure 2

1. Steering shaft cover
2. Roll pin

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

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

SETTING UP INSTRUCTIONS

INSTALL THE SEAT

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

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

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

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

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

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

6. Tighten all locknuts.

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

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

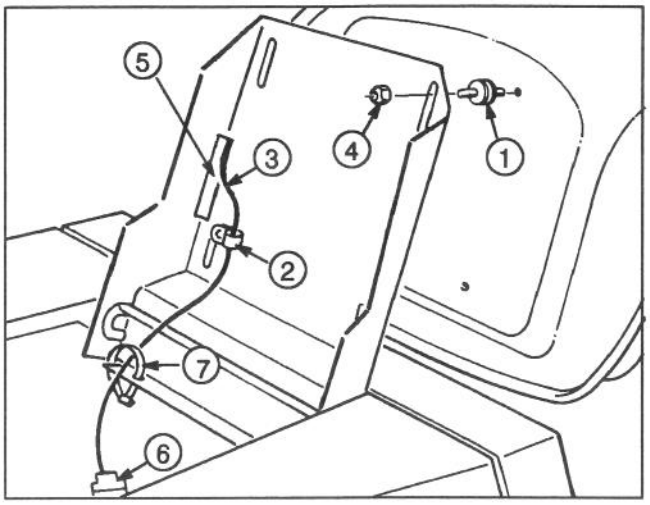


Figure 3

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

CONTROLS

Gear Shift (Fig. 4)

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

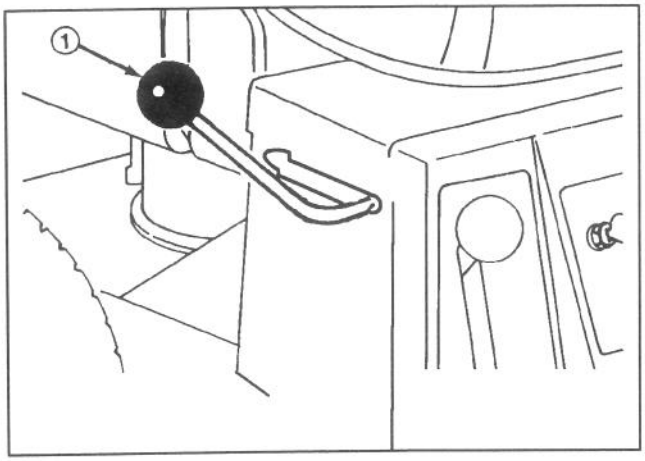


Figure 4

1. *Gear shift*

Clutch Pedal (Fig. 5)

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

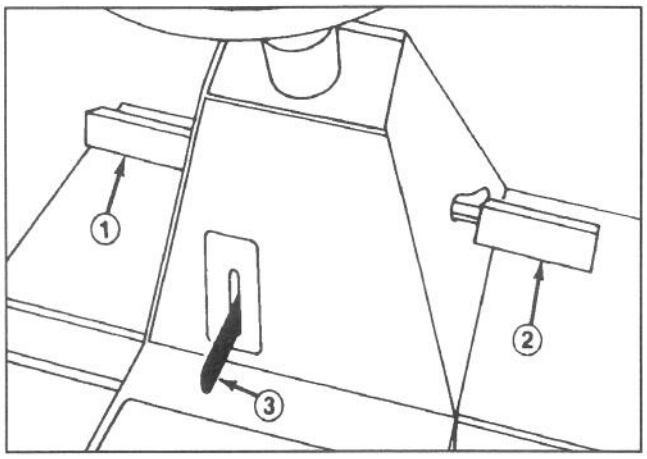


Figure 5

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

CONTROLS

Brake Pedal (Fig. 5)

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

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

Parking Brake (Fig. 5)

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

Deck Engagement Lever (Fig. 6)

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

Ignition Switch (Fig. 6)

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

Height-of-Cut Control (Fig. 6)

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

Throttle Control (Fig. 6)

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

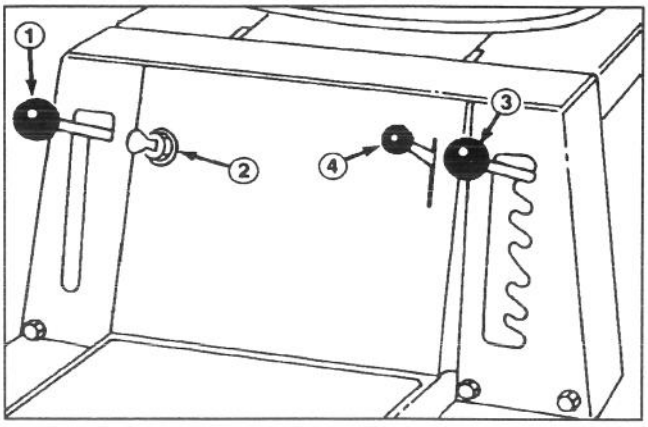


Figure 6

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

Back-Up Recoil Starter (Fig. 7)

The recoil starter must be used with the ignition switch. After turning the ignition key to ON, pull the recoil starter handle to start the engine.

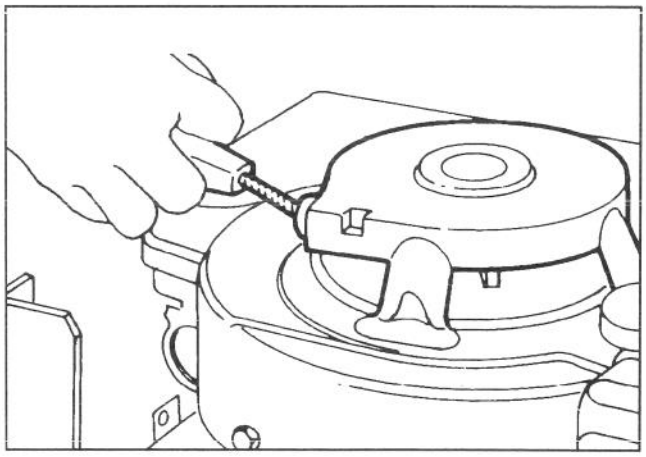


Figure 7

ACTIVATING AND CHARGING THE BATTERY

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

1. Tip the seat forward exposing the battery.

2. Remove the wing nut securing the battery hold downs to the rider chassis. (Fig. 8).

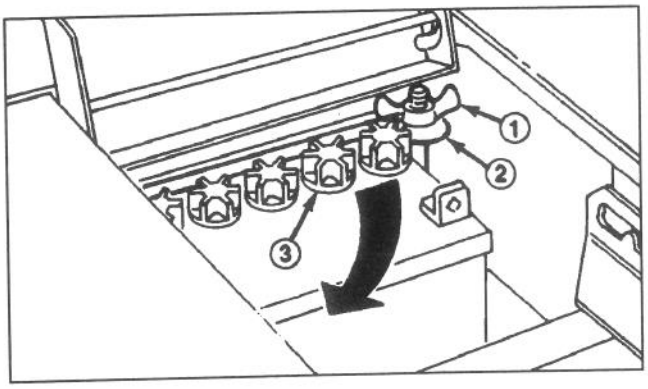


Figure 8

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

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

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

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

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

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

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

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

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

10. Reinstall the battery hold downs.

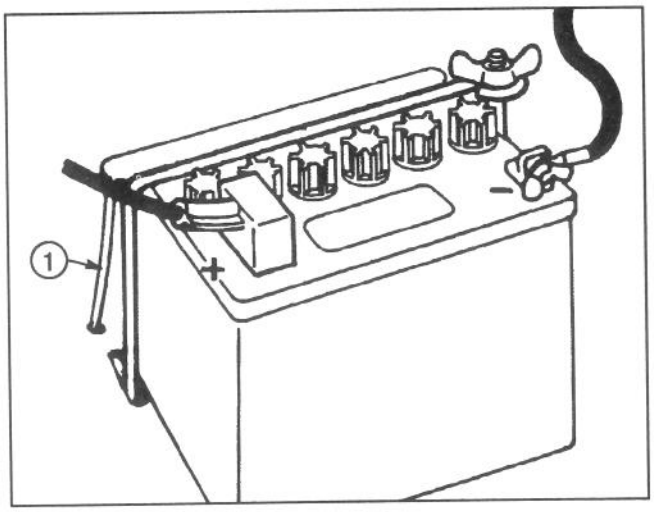


Figure 9

1. *Vent tube*

WARNING

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

11. Install the positive cable (rubber boot over end) to the positive (+) terminal and the negative cable (black) to the negative (–) terminal of the battery and secure them with capscrews and wing nuts. Slide the rubber boot over the positive terminal to prevent a possible short-out (Fig. 9).

FILL THE CRANKCASE WITH OIL

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

1. Place the rider on a level surface.

2. Unscrew and remove the dipstick from the oil fill tube (Fig. 10).

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

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

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

C. Below 0° (-18° C) – Use 5W-20 or 5W-30.

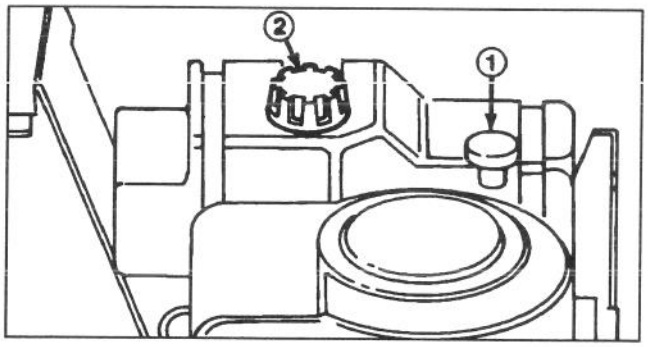


Figure 10

1. Dipstick *2. Fuel tank cap*

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

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

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

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

BEFORE OPERATING

FILL THE FUEL TANK WITH GASOLINE

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

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

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

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

1. Clean the area around the fuel tank cap so foreign matter cannot enter the tank when the cap is removed (Fig. 10).

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

3. Wipe up any gasoline that may have spilled.

CHECK TIRE PRESSURE

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

STARTING AND STOPPING INSTRUCTIONS

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

START AND OPERATE MACHINE

Note: The operator must be seated to activate the seat switch before the unit will crank.

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

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

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

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

RECOIL STARTING

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

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

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

3. Select the desired height-of-cut and move the blade control to ENGAGE.

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

TO STOP

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

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

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

OPERATING INSTRUCTIONS

BREAK-IN

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

USING THE PARKING BRAKE

⚠ CAUTION

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

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

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

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

ADJUSTING HEIGHT-OF-CUT

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

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

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

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

GRASS DEFLECTOR

⚠ WARNING

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

OPERATING PROCEDURE

⚠ WARNING

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

1. Move deck engagement lever to the DISENGAGE position.

2. Start the engine: refer to Starting/Stopping Instructions, page EN-12.

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

⚠ WARNING

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

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

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

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

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

OPERATING INSTRUCTIONS

GRASS CUTTING TIPS

1. When the rider is used to cut a lawn for the first time, cut the grass slightly longer than normal to ensure that the 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 amount of moisture, raise the 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 the 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 an area that was cut previously. Stop forward movement occasionally to allow the discharge area to clear itself. Cutting too much grass may clog the mower housing and discharge area. If the mower housing does clog, shut off the engine, disengage the deck and remove the obstruction with a stick.

⚠ DANGER

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

4. When mowing, operate the engine at full throttle. This maintains proper blade speed and air flow to facilitate the 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

MAINTENANCE INTERVAL CHART

Service Operation	5 Hours	25 Hours	Storage Service	Spring Service	2 Years	Notes
Change Oil (Initial)	X					
Change Oil (Periodic)		X	X			
Check Safety Interlock	X	X		X	X	Before each use.
Check Cutter Blade	X	X	X			
Check Brake	X	X	X	X		
Grease Front Axle Spindles & Wheel Bearings		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			

⚠ CAUTION

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

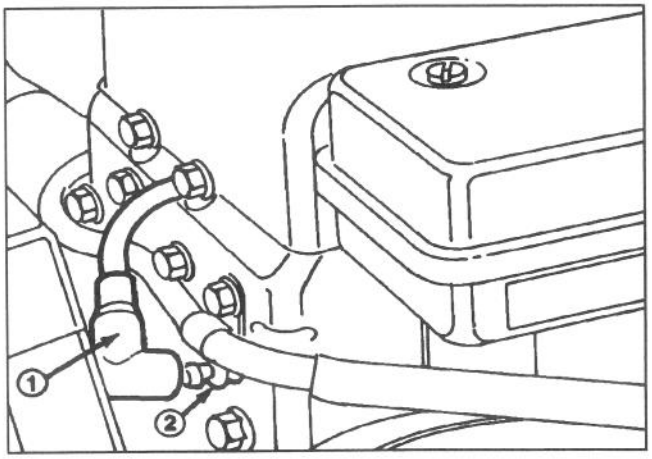


Figure 11

1. Spark plug wire *2. Spark plug*

GREASE THE FRONT AXLE SPINDLES AND WHEELS

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

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

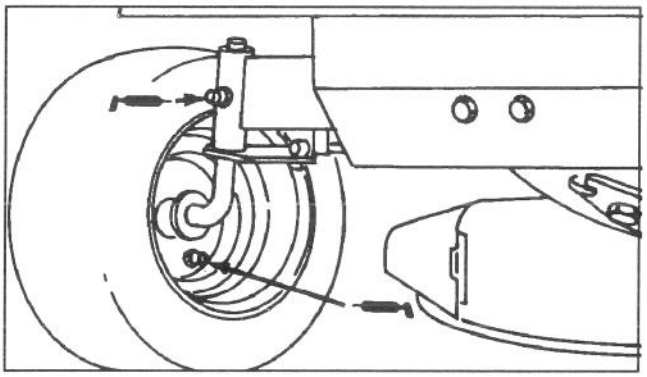


Figure 12

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 the grease gun until grease oozes. Wipe up any excess grease.

LUBRICATE PIVOT POINTS

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

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

1. Drain gasoline from fuel tank: refer to Draining Gasoline From The Fuel Tank, page EN-19.

2. Drain oil from crankcase: refer to Check/Change The Crankcase Oil, step 2, page EN-17.

3. Remove the battery from the chassis: refer to Activating And Charging The Battery, page EN-9.

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

5. Tip rider up and onto its rear end.

6. Remove mower housing from the rider chassis: refer to Removing/Installing The Cutting Unit, steps 1-5, page EN-22.

7. Lubricate the pivot points in the steering, drive, brake, clutch, and deck engagement linkage with light oil (Fig. 13). Also lubricate the mower housing (Fig. 14). Wipe up any excess oil.

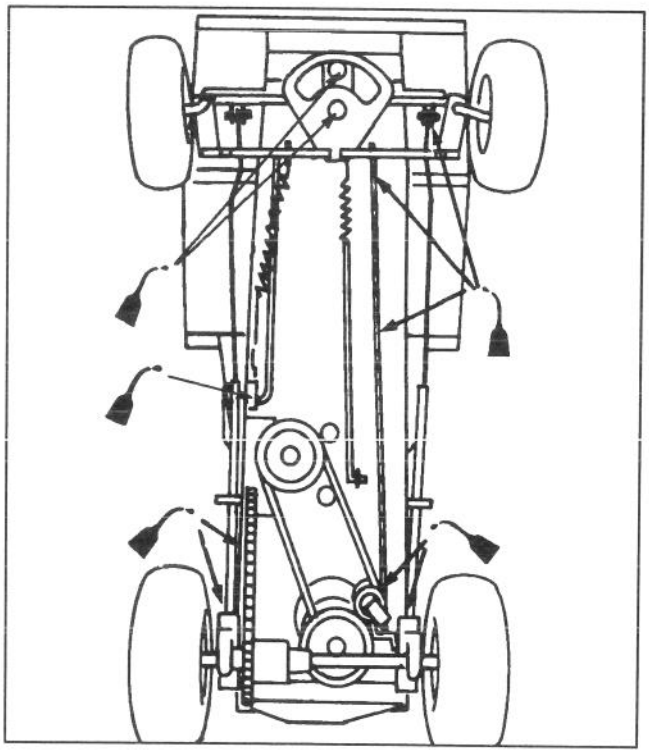


Figure 13

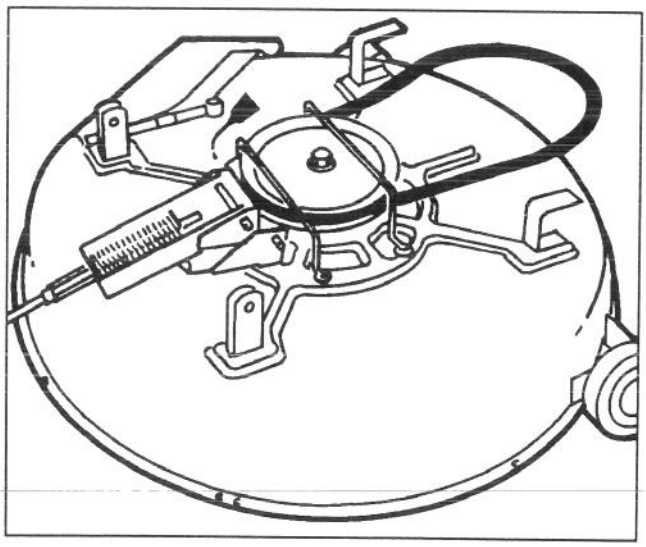


Figure 14

8. Reinstall the mower housing onto the rider chassis: refer to Removing/Installing The Cutting Unit, page EN-22.

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

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

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

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

CHECK/CHANGE THE CRANKCASE OIL

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

To check the oil level:

A. Position the rider on a level surface.

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

C. Unscrew the dipstick and wipe oil off.

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

E. Screw the dipstick back into the filler neck.

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

To change oil:

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

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

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

C. Unscrew the dipstick and add oil to the crankcase. Refer to Fill The Crankcase With Oil, page EN-10. Capacity of the crankcase is 48 oz. (1.42 l). **DO NOT OVERFILL** or engine damage may result.

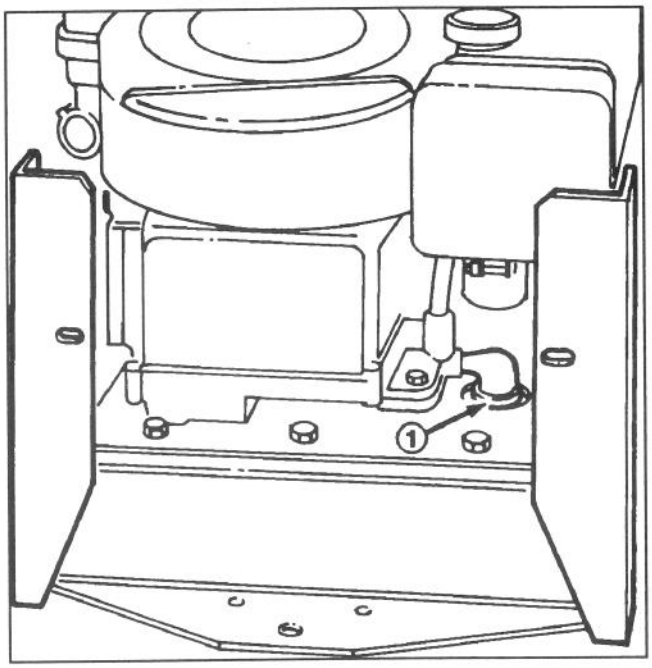


Figure 15

1. Drain plug

SERVICING THE AIR CLEANER

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

1. Remove the wire from the spark plug (Fig. 11).

2. Remove the 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 the foam pre-cleaner in liquid soap and warm water. Rinse thoroughly in clear water.

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

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

4. The paper air cleaner cartridge should be replaced every 100 hours. Remove one nut from the top of the paper cartridge (Fig. 16).

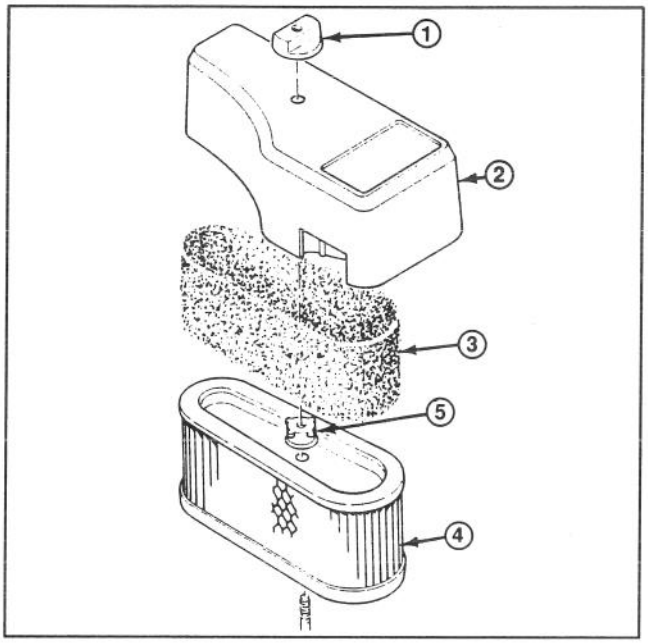


Figure 16

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

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

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

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

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

REPLACING THE SPARK PLUG

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

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

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

2. Pull the wire off the spark plug and remove the plug from the cylinder head (Fig. 17).

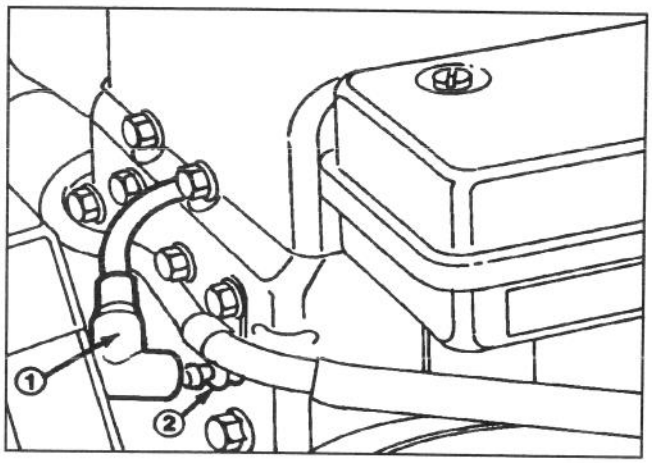


Figure 17

1. *Spark plug wire*
2. *Spark plug*

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

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

4. Set the air gap between the center and side electrodes at 0.030 of an inch (0.762 mm) (Fig. 18). Install correctly gapped spark plug w/gasket seal, and tighten the plug to 15 ft-lb (20.4 Nm).

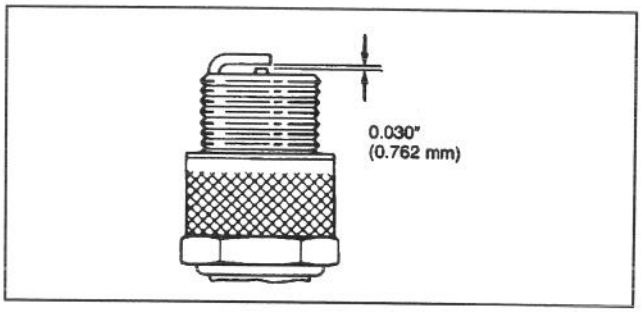


Figure 18

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

DRAINING GASOLINE FROM THE FUEL TANK

CAUTION

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

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

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

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

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

ADJUSTING THE THROTTLE/CHOKE CONTROL

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

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

2. The throttle lever should be just touching the choke link (Fig. 19); if they are not in this position, an adjustment is necessary:

   A. Place remote control lever in the OPERATE position.

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

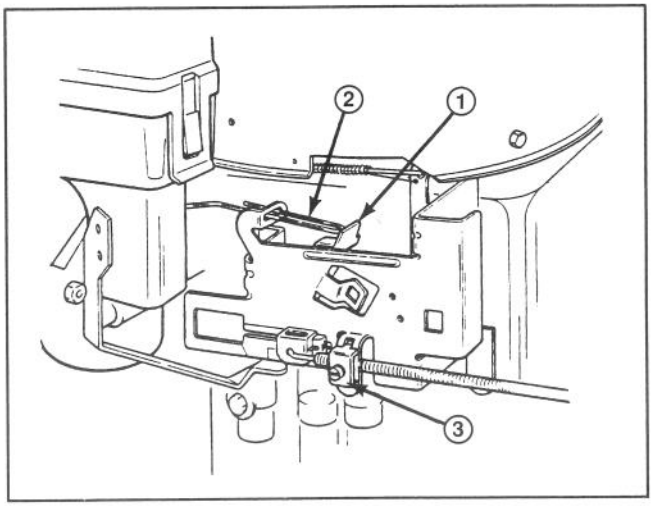


Figure 19

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

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

ADJUSTING CARBURETOR

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

IMPORTANT: Before the carburetor is adjusted, the throttle control must be checked for proper operation: refer to Adjusting The Throttle/Choke Control, page EN-19.

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

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

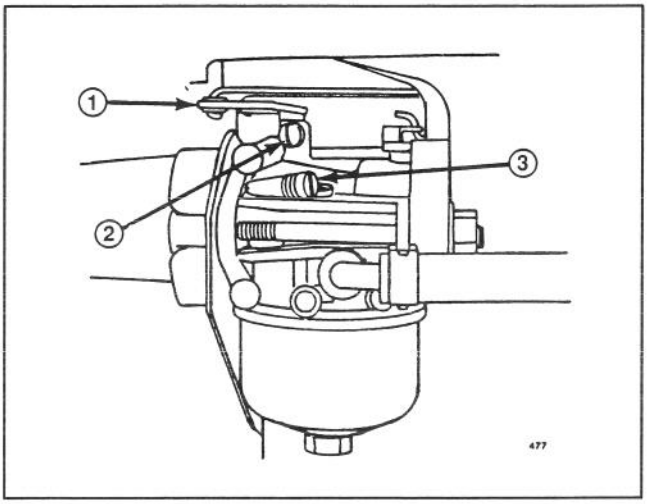


Figure 20

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

⚠ WARNING

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

3. Start the engine and move the throttle control to the IDLE position.

4. Turn the throttle (Fig. 20) counterclockwise and hold against idle speed adjusting screw (Fig. 20) while turning the idle speed adjusting screw to obtain 1750 rpm.

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

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

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

SERVICING THE CUTTER BLADE

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

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

2. Drain gasoline from the fuel tank: refer to Draining Gasoline From The Fuel Tank, page EN-19.

3. Drain the oil from the crankcase: refer to Check/Change The Crankcase Oil, page EN-17.

4. Remove the battery from chassis: refer to Activating And Charging The Battery, page EN-9.

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

6. Grasp the end of the blade using a rag or thickly padded glove; then remove the blade bolt, washer, blade stiffener and blade (Fig. 21).

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

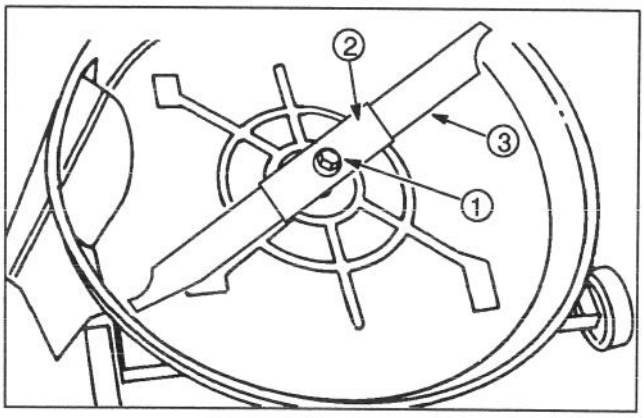


Figure 21

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

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

⚠ CAUTION

Check the cutter blade every time rider is tipped on end. If the blade bolt holding blade is loose, tighten it to 45-60 ft-lb (61-81 Nm). If blade or sail (Fig. 22) at end of blade is worn, eroded, or cracked, replace it. Replace the blade if it is bent. Always use genuine TORO replacement blades to ensure safety and best performance. NEVER USE WILL-FIT REPLACEMENT BLADES.

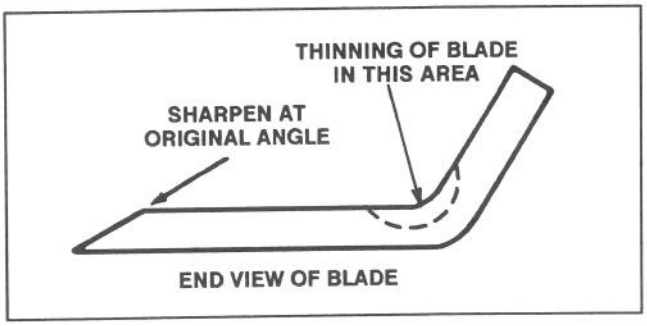


Figure 22

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

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

9. In sequence, install the blade, the blade stiffener, washer and blade bolt (Fig. 21). Tighten the blade bolt to 45-60 ft-lb (61-81 Nm).

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

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

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

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

13. Install the battery: refer to Activating And Charging The Battery, page EN-9.

CLEANING THE UNDERSIDE OF THE MOWER HOUSING

To ensure a good quality-of-cut and efficient grass bagging, the underside of the mower housing and the inside of discharge area must be kept clean. Periodically apply a coat of paste wax on the inside of the mower housing and grass deflector. This will retard rust and prevent dirt and grass from sticking on the inside of the housing.

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

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

2. Drain gasoline from the fuel tank: refer to Draining Gasoline From The Fuel Tank, page EN-19.

3. Drain the oil from the crankcase: refer to Check/Change The Crankcase Oil, step 2, page EN-17.

4. Remove the battery from the chassis: refer to Activating And Charging The Battery, page EN-9.

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

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

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

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

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

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

11. Install the battery: refer to Activating And Charging The Battery, page EN-9.

REMOVING/INSTALLING THE CUTTING UNIT

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

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

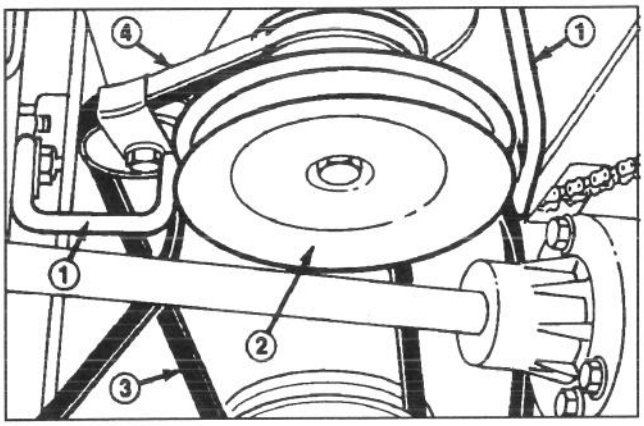


Figure 23

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

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

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

5. Reinstall in reverse order.

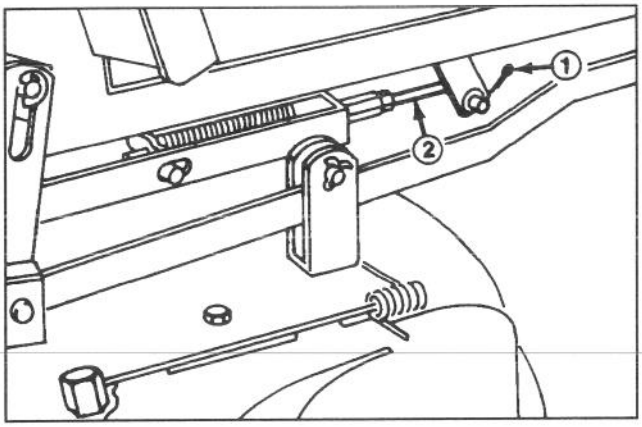


Figure 24

1. Cotter pin
2. Adjustment rod

REPLACING THE BLADE DRIVE BELT

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

2. Remove the cutting unit: refer to Removing/Installing The Cutting Unit, page EN-22.

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

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

5. Reinstall the cutting unit: refer to Removing/Installing The Cutting Unit, page EN-22.

ADJUSTING THE BLADE DRIVE BELT

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

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

3. Rotate the adjustment rod until there is 0.060 inch (1.5 mm) or less between the end of the slot in the engagement bracket and the outer diameter of the pin (Fig. 25).

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

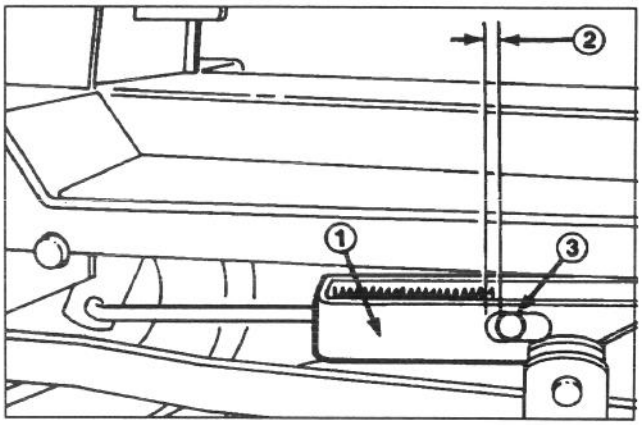


Figure 25

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

REPLACING THE TRACTION DRIVE BELT

1. Remove the cutting unit: refer to Removing/Installing The Cutting Unit, page EN-22.

2. Remove the belt guides from the transmission pulley and loosen the belt guides at the engine pulley. Loosen the locknut and remove the belt retainer from the idler pulley.

3. Pull the idler arm to release the belt tension and remove the drive belt. Inspect the belt for damage or wear and install a new belt if needed.

4. Replace the belt guides for the transmission pulley and retighten the belt guides on the engine pulley. Install the belt retainer on the idler pulley positioned toward the rear as shown in Figure 23.

IMPORTANT: The belt retainer must be installed toward rear according to step 4 or the rider may creep forward in neutral.

5. Reinstall the cutting unit: refer to Removing/Installing The Cutting Unit page EN-22.

ADJUSTING DRIVE CHAIN

The drive chain must be adjusted to maintain 1/8 of an inch (3 mm) deflection at mid span between the transmission and differential sprockets. Check the chain deflection after the first 5 hours of operation and after every 25 hours of operation thereafter.

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

1. Check the deflection of the 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.

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

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

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

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

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

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

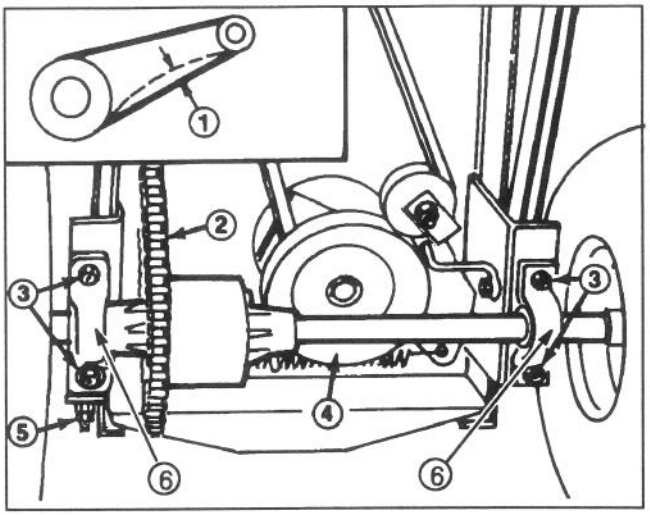


Figure 26

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

ADJUSTING FRONT WHEEL ALIGNMENT

1. To align the front wheels, loosen the jam nut and turn the tie rod until the centerline distance across the front of the wheels (d') is .06 inch (1.5 mm) to 0.25 inch (6.3 mm) less than the centerline distance across the rear of the front wheels (d") (Figs. 27 and 28).

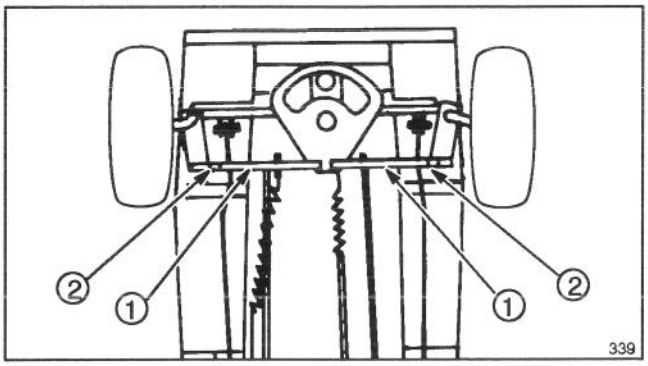


Figure 27

1. Tie rod *2. Jam nut*

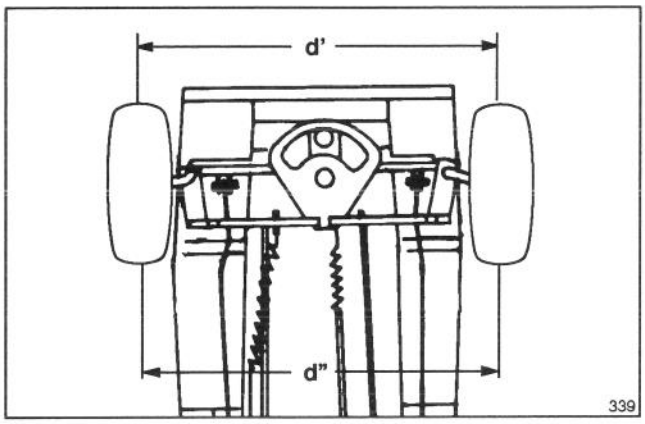


Figure 28

2. Retighten the jam nuts.

ADJUSTING THE BRAKE

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

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

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

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

4. Check operation of the brake by pushing the rider: no brake drag should be evident. If drag is evident, rotate the locknut an additional 1/8 turn counter-clockwise or until there is no contact.

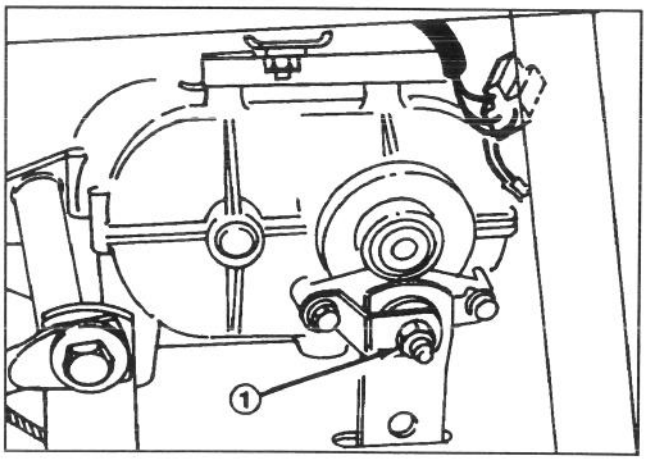


Figure 29

1. Locknut

LEVELING CUTTING UNIT

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

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

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

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

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

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

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

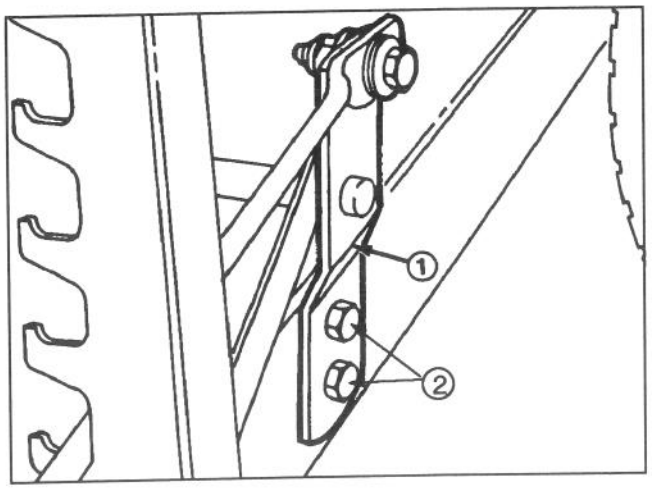


Figure 30

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

ADJUSTING THE GEAR SHIFT NEUTRAL POSITION

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

1. Raise the seat to expose the gear shift guide.

2. Loosen (2) capscrews mounting the gear shift guide to the transmission (Fig. 31).

3. Move the guide so the neutral position aligns with the gear shift lever when in the neutral position.

4. Tighten the capscrews.

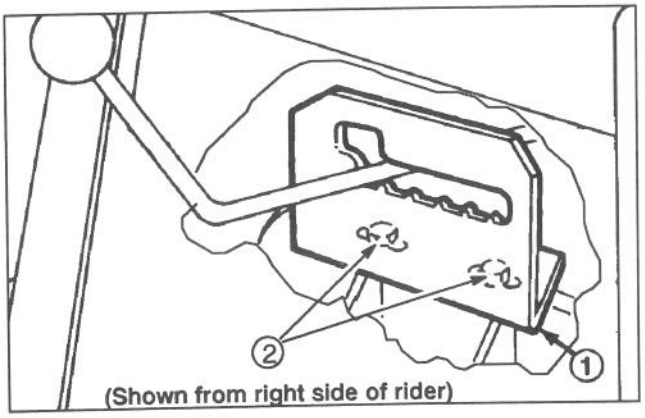


Figure 31

1. Gear shift guide *2. Capscrews*

CHECKING THE SAFETY INTERLOCK SYSTEM

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

1. Move the gear shift into neutral.

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

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

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

⚠ WARNING

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

PREPARING MOWER FOR STORAGE

1. For long-term storage, either drain gasoline from the fuel tank or use a fuel additive before storing. To drain gasoline, refer to Draining Gasoline From The Fuel Tank, page EN-19. After fuel is drained, start the engine and let it idle until all fuel is consumed and engine stops. Repeat the starting procedure two more times to ensure all gas is removed from the engine. If gasoline is not drained, gum-like varnish deposits will form and cause poor engine operation, even starting problems.

Fuel can be left in the gas tank only if a fuel additive, such as TORO'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 additives in recommended quantities as specified on container.

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

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

3. Drain oil from the crankcase: refer to Check/Change The Crankcase Oil, page EN-17. However, do not fill the crankcase with oil at this time.

4. Remove the battery from the chassis: refer to Activating And Charging The Battery, page EN-9. Remove corrosion from the battery terminal and wipe any grease and dirt off the battery case. Check the level of electrolyte. If the level is low, add distilled water to the affected cell. Fill only to the FULL line on the side of the battery. Reinstall the filler caps.

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

6. Clean the underside of the mower housing: refer to Cleaning The Underside Of The Mower Housing, page EN-21.

7. Check the condition of blade: refer to Servicing The Cutter Blade, page EN-20.

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

9. Lubricate wheels and spindles with grease: refer to Grease The Front Axle Spindles And Wheels, page EN-16.

10. Remove dust and dirt from the air cleaner element: refer to Servicing The Air Cleaner, page EN-17.

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

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

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

13. Install the battery: refer to Activating And Charging The Battery, page EN-9. Charge battery for 48 hours to ensure full charge.

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

TROUBLESHOOTING

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

TROUBLESHOOTING

Problem	Possible Causes	Corrective Action
Engine over heats.	1. Cooling fins and air passages under engine blower housing are plugged.	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.	4. Install new cutter blade.
	5. Blade bolt holding blade is loose.	5. Tighten bolt to 45-60 ft-lb (61-81 Nm).
	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 does not shift gear.	4. Have rider serviced by Authorized TORO Service Dealer.
	5. Traction idler is adjusted incorrectly.	5. Adjust traction drive belt.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