

12 H.P. Lawn Tractor

TORO®

Wheel Horse®

Operator's Manual

Model 57450

Specifications
Operating Instructions
Maintenance Information

Form Number 3314-433

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

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

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

SAFE OPERATION PRACTICES - 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 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.

SAFE OPERATING PRACTICES

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, such as disengaging power-take-off, lowering attachments, shifting into neutral, setting parking brake, stopping engine and removing 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 overspeed engine.

14. Wear appropriate protective clothing when operating equipment. Long pants and substantial footwear, not barefoot or open sandals, are essential.

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. Assure safety switches are functioning correctly before each use of the tractor. Have all safety related components and safety switches checked by an authorized TORO Service Dealer every two years to assure safe operation of the tractor. OPERATOR SHOULD TAKE PRECAUTIONS AND NOT RELY ENTIRELY ON SAFETY SWITCH(ES).

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.

SAFE OPERATING PRACTICES

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 tractor in place at rest, with engine off. Parking brake will not restrain tractor 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 can not be safely operated.

43. Avoid operating equipment on hillsides, slopes or rough terrain. DO NOT operate machine on hill-sides 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 tractor 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 insure 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 when 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 mower 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.

60. When using machine with snowthrower and auger becomes plugged or jammed:

A. Declutch snowthrower and stop tractor engine immediately.

B. Disconnect spark plug wire(s).

C. Clear snow from discharge chute if plugged.

D. If auger is jammed, remove foreign object and repair any damage to snowthrower before continuing.

E. Reconnect spark plug wire(s) and resume operation.

SAFE OPERATING PRACTICES

61. Never permit anyone to stand near snowthrower auger or discharge opening. Objects may be present in snow, which when thrown, could cause injury.

62. When using snow/dozer blades:

A. Avoid hitting solid objects. This can damage blade and injure operator.

B. Always travel at a safe, slow speed.

63. Keep all persons a safe distance away when operating tillers. Always disengage the PTO, lower the attachment and remove the ignition key before making any adjustments.

64. If tiller starts to push tractor, disengage PTO clutch immediately.

65. Use chains, counterweight(s) or wheel weights when suggested in the operator's manual.

MAINTENANCE

66. 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.

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

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

69. Use only genuine Wheel Horse replacement parts to assure that original standards are maintained.

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

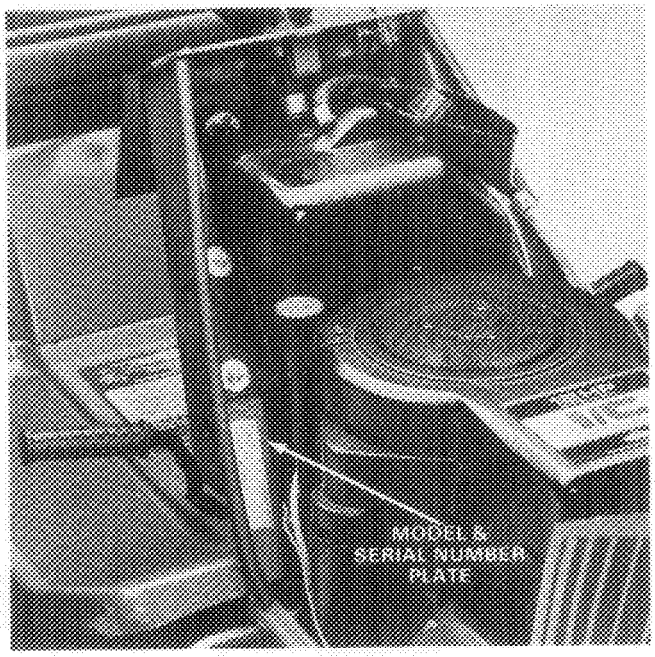
71. Do not operate without muffler or tamper with the exhaust system. Damaged mufflers or spark arresters can create a fire hazard. Periodically inspect and replace if necessary.

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

73. 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 tractor. These numbers should always be referred to when consulting dealer or factory concerning service, parts, or other information you may require. Tractor vehicle identification number is stamped on a decal, located under the hood to the right of the steering shaft.



Model and Serial Number Location

Rider Identification Number

MOD. _____

SER. _____

Engine Identification Number

Model _____

Serial Number _____

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 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.**

REPLACEMENT OPERATORS MANUAL

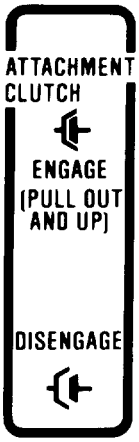
A replacement manual is available by sending complete model and serial number to:

The Toro Company
8111 Lyndale Avenue South
Minneapolis, Minnesota 55420.

SAFETY AND INSTRUCTION DECALS

The following safety and instruction decals are mounted on the TORO Lawn Tractor. Replace any that become damaged or illegible.

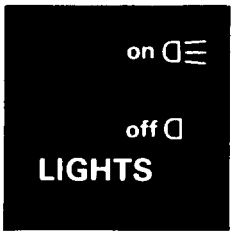
LOWER LEFT SIDE OF DASH PANEL (Part No. 44-5710)





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

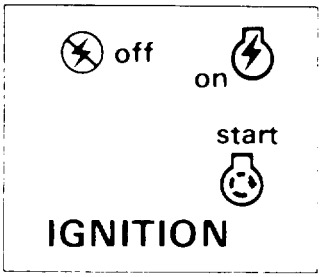
'AROUND' LIGHT SWITCH (Part No. 28-2510)



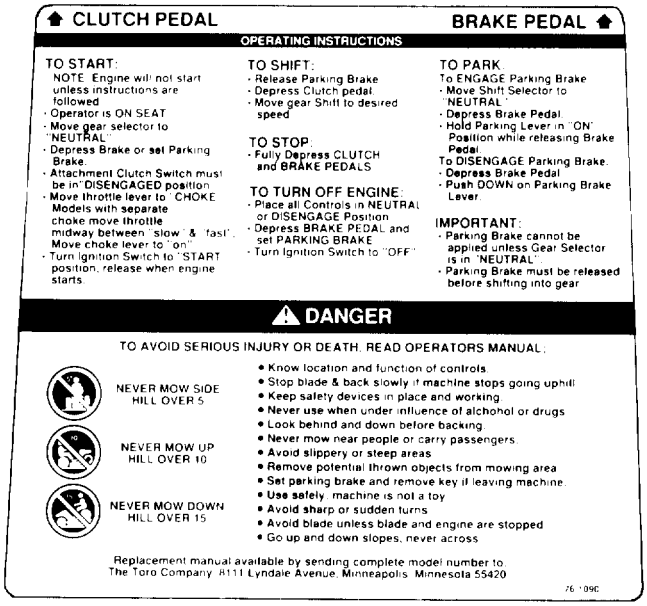
ON DEFLECTOR (Part No. 54-9220)



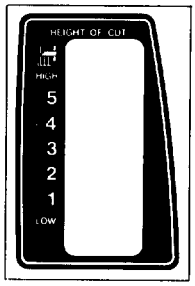
AROUND KEY SWITCH (Part No. 28-2690)



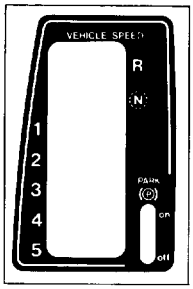
ON FLOOR PANEL (Part No. 76-1090)



LEFT SIDE OF SEAT (Part No. 63-5710)



RIGHT SIDE OF SEAT (Part No. 63-5700)



SPECIFICATIONS

Briggs & Stratton Engine: IC Quiet Series, electric start with alternator, four cycle engine, has output of 12.5 hp (9.3 KW) @ 3600 rpm and 20 ft/lb (27.2 N·m) torque @ 2800 rpm. Displacement is 28.4 cubic inches (465 cc). Crankcase oil capacity is 3 pints (1.42 l) and fuel tank capacity is 7 quarts (6.62 l). Correct spark plug is a Champion RJ19LM resistor type and air gap is .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 width is 32 inches (.813 m). Cast iron spindle housing with shaft is supported by two double seal ball bearings. Blade spindle pulley is driven by a spring tensioned "A" section V-belt from clutch on engine crankshaft.

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

Blade Tip Speed: 12,870 ft./min (65.38 m/s) @ 2500 engine rpm.

Transmission: Transmission fully enclosed, permanently lubricated with differential enclosed. In line shift pattern with five speeds forward and one reverse.

Traction Drive: "A" section V-belt with 2:1 reduction from engine pulley to automotive type clutch on transaxle input shaft.

Ground Speed @ 2500 Engine rpm:

1st gear	— .89 MPH (1.9 km/hr)
2nd gear	— 1.83 MPH (4.0 km/hr)
3rd gear	— 2.74 MPH (6.0 km/hr)
4th gear	— 3.50 MPH (7.7 km/hr)
5th gear	— 4.00 MPH (8.7 km/hr)
Rev.	— 1.37 MPH (3.0 km/hr)

Wheels and Tires: The front 14 x 5.00-6 and the rear 16 x 6.50 8 tubeless, pneumatic turf tires are installed on demountable stamped steel wheels. Recommended tire pressure is 13 psi (89.6 kpa).

Steering: 13 inch (0.330 m) diameter steering wheel mounted on a TORO design high helix screw shaft with a 6.3:1 reduction. One and one half wheel turns stop to stop.

Engine Controls: Control wire and casing with FAST, SLOW and CHOKE positions. Key switch with ON, OFF and START positions. Both controls mounted on dash panel.

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

Traction Clutch: Foot operated pedal on left side. Depressing pedal disengages clutch friction disc.

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 right side of operator. Depress brake pedal and lift lever to engage. Transmission must be in neutral to apply parking brake.

Cutter Blade Control: Toggle switch (pull out and up to engage) on steering tower in front of operator. Switch releases blade brake and engages electromagnetic clutch.

Height-Of-Cut Control Lever: Hand Operated lever at left of operator. Height of cut selection is variable in five increments from 1 to 3 1/2 inches (25 to 85 mm).

General Dimensions (approx.):

Wheel Base	— 46 in. (1.168 m)
Tread Width	— 31 in. (0.787 m) front outside to outside
	— 32 in. (0.813 m) rear outside to outside
Turning Radius	— 32 in. (0.813 m) inside wheel
Length	— 62 in. (1.575 m)
Width	— 38 1/2 in (0.978 m)
Height	— 45 in. (1.143 m)
Weight	— 430 pounds (195.05 Kg)

Safety Features: Meets B71.1 — 1986 ANSI safety specifications and #84/538/EEC noise directive.
Traction drive, blade drive and seat interlock.
Enclosed engine and muffler.
Enclosed traction drive.
Automotive type traction clutch.
Full foot rests.
Convenient, easy to operate controls.
Automatic blade brake.
Stable-Wide track and low center of gravity.
Parking brake lockout prevents forward travel if parking brake is engaged.

Optional Accessories Attachments:
Easy Empty Grass Catcher, Model #59177.
Dump Cart.
42" Snow Blade Kit, Model #59140.
36" Snowthrower, Model #59160.
Tire Chain Kit, Model #47-7220.
Spark Arrester Muffler, Part #63-5660.
High Vacuum Bagging Kit, Part #38-5730.
Recycler Kit, Model #59155.

LOOSE PARTS

DESCRIPTION	QTY.	USE
Tire and Wheel Assembly	2	Mount to front axles.
Cotter Pin 1/8 in. x 1-1/4 in.	2	Secure wheels to axles.
Washer	2	Mount to front axles.
Hub Cap	4	Mount to front axles.
Steering Wheel	1	On steering shaft.
Roll Pin	1	Secure steering wheel to shaft.
Seat	1	Install on machine.
Spacer — Insolators	4	Install between seat and seat mount plate.
Locknuts 5/16 - 18	4	Mount seat spacers to seat mount plate.
Clamp	1	Secure wire harness to seat mount plate.
Carriage Bolt 1/4-20 x 5/8 in.	1	Secure wire harness to seat mount plate.
Locknut 1/4-20	1	Secure wire harness to seat mount plate.
Capscrew 1/4 - 20 x 5/8 in.	2	Install battery cables.
Wing Nut	2	Install battery cables.
Key	2	Install in start switch.
Operator's Manual	1	Read manual before operating Tractor.
Reg. Card	1	Fill out and return to Toro.

SETTING UP INSTRUCTIONS

INSTALL FRONT WHEELS

1. Install wheel onto axle.

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

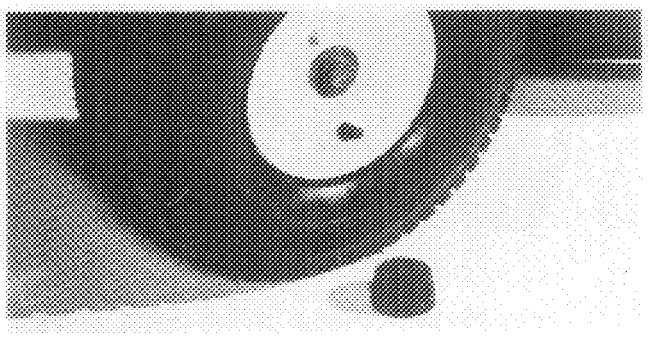


Figure 1

3. Install hub cap and grease wheel bearing.

4. Repeat steps 1-3 on opposite side.

Note: Grease front wheels after assembly to front axle.

INSTALL STEERING WHEEL

1. Slip steering wheel over shaft and line the steering wheel mount hole with the shaft mounting hole.

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

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

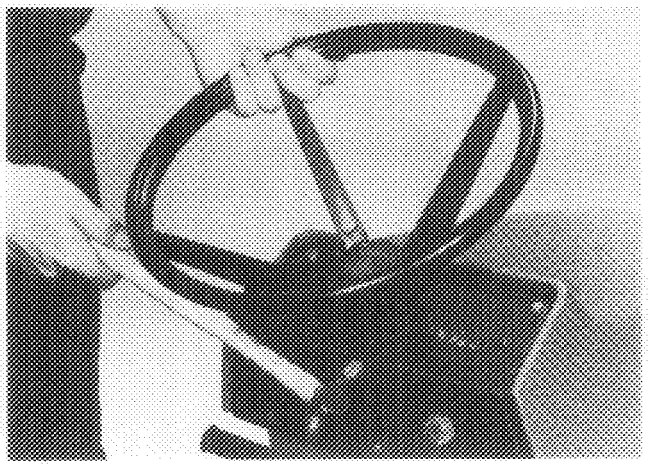


Figure 2

INSTALL SEAT

1. Remove battery from under seat mount plate and set aside.

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

3. Insert carriage bolt into square hole next to grommet in plate (Fig. 3).

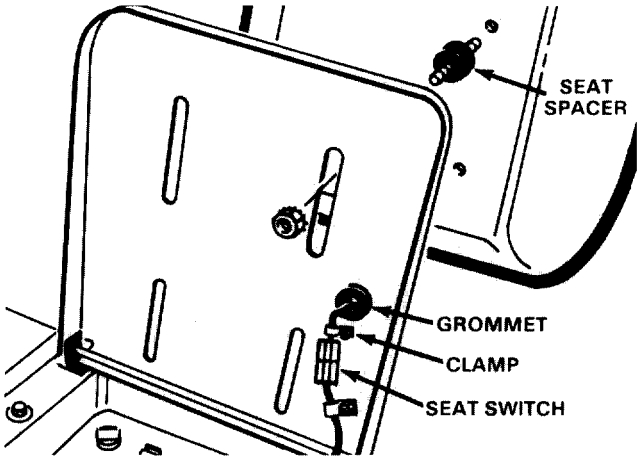


Figure 3

4. Position seat onto mounting plate, inserting seat switch cable thru grommet in plate and spacer studs thru mounting holes.

5. Secure seat to mounting plate with (4) locknuts.

6. Insert seat switch connector into wire harness connector (Fig. 3).

7. Install clamp around seat switch wire and over carriage bolt. Secure clamp to carriage bolt with locknut (Fig. 3).

ADJUSTING SEAT

Tip the seat forward, loosen the seat mounting capscrews and relocate the seat for operator comfort. Retighten the capscrews and lower the seat.

BEFORE OPERATING

ACTIVATING AND CHARGING BATTERY (12 Volt)

Since the battery for the tractor is not filled with electrolyte or activated, the battery, if you have not already done so, 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 and lift battery out of compartment (Fig. 4).

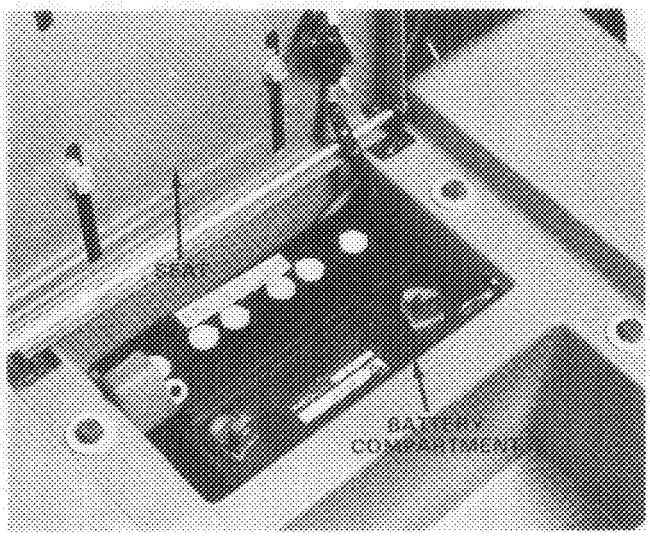


Figure 4

CAUTION

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

2. Remove filler caps from battery and slowly fill each cell until electrolyte is just above the plates. To obtain best results, let battery set for 20 minutes. Add electrolyte to the maximum capacity.

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



Figure 5

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

5. Slowly add electrolyte to each cell until level is up to fill ring. Install filler caps.

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

6. Install the battery into the battery compartment with the terminal posts toward the rear of the machine.

7. 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 possible short-out from occurring (Fig. 6).

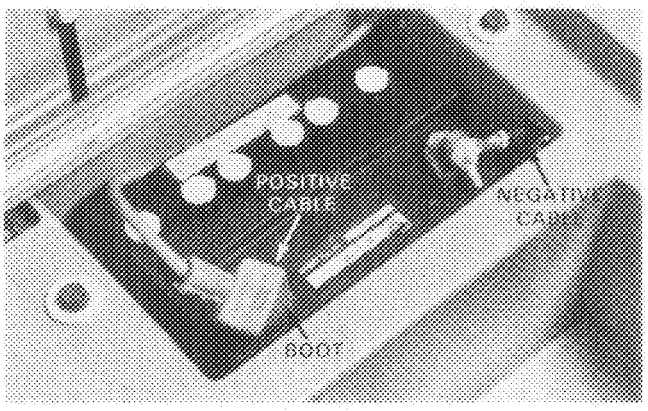


Figure 6

CHECK CRANKCASE OIL LEVEL

The tractor is shipped from the factory with oil in the crankcase. However, check the oil level in the crankcase prior to starting the engine.

BEFORE OPERATING

1. Place tractor on a level surface to assure accurate oil level reading and open the hood. Ensure the oil drain plug is securely tightened, Page 19, (Fig. 17).

2. Unscrew and remove the dipstick from the oil fill tube (Fig. 7).

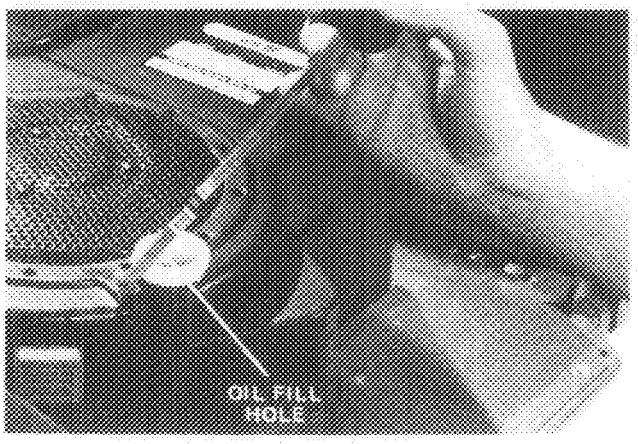


Figure 7

3. If oil level is low, insert a funnel into the tube and slowly add engine oil into the crankcase. Use a high quality detergent oil classified "For Service SC, SD, SE or MS". Oil viscosity (weight) must be selected according to anticipated ambient temperature.

A. Above +40° F (4° C) – Use SAE 30; 10W-30 as a substitute.

B. Below +40° F (4° C) – Use SAE 5W-20 or 5W-30; SAE 10 or 10W-30 as substitutes.

C. Below 0° F (-18° C) – Use SAE 10 or 10W-30 diluted 10% with kerosene.

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

4. Insure 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 contaminents produced by normal engine break-in; thereafter, under normal conditions, change oil after every 25 hours of operation. Change the oil more frequently when the engine is operated in dusty or dirty conditions.

FILL FUEL TANK WITH GASOLINE

DANGER

Because gasoline is flammable, caution must be used when storing or handling it. Do not fill fuel tank while engine is running, hot or when machine is in an enclosed area. Vapors may build up and be ignited by a spark or flame source many feet away. DO NOT SMOKE while filling the fuel tank to prevent the possibility of an explosion. Always fill fuel tank outside and wipe up any spilled gasoline before starting engine. Use a funnel or spout to prevent spilling gasoline, and fill tank to about 1/2 inch (12.7 mm) below the filler neck. Store gasoline in a clean safety-approved container and keep the cap in place on the container. Keep gasoline in a cool, well-ventilated place; never in an enclosed area such as a hot storage shed. To assure volatility, do not buy more than a 30 day supply of gasoline. Gasoline is a fuel for internal combustion engines; therefore, do not use it for any other purpose. Since many children like the smell of gas, keep it out of their reach because the fumes are explosive and dangerous to inhale.

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

Note: Never use *Methanol,* gasoline containing *Methanol,* gasohol containing more than 10% ethanol, gasoline additives, premium gasoline, or white gas because engine fuel system damage could result.

1. Open the hood.

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

3. Remove cap from fuel tank (Fig. 8) and fill tank w/lead-free or leaded regular gasoline. Then install fuel tank cap.

BEFORE OPERATING

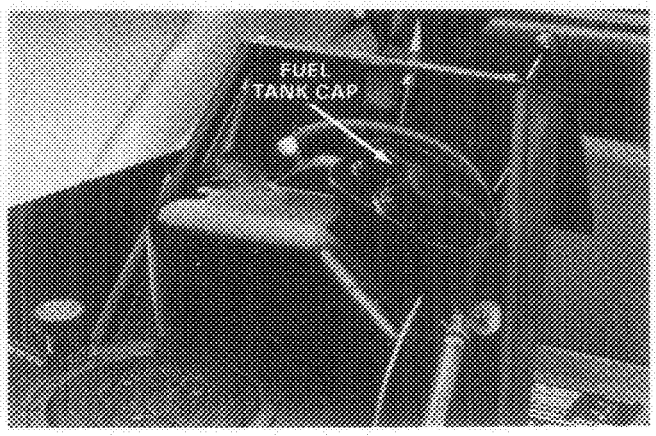


Figure 8

4. Wipe up any gasoline that may have spilled.
5. Close the hood and make sure it snaps in place.

CHECK TIRE PRESSURE

Check and insure the tires are inflated to 13 psi (89.6 kpa) before operating the machine.

CONTROLS

Clutch Pedal (Fig. 9) — Foot operated clutch pedal is used in conjunction with the gear shift. Clutch must be fully depressed when shifting gears so that friction drive plates are separated on clutch assembly.

Throttle Control (Fig. 9) — Throttle control connects to and operates carburetor mounted throttle and choke. Control has three positions: IDLE, FAST and CHOKE. The control must be pushed slightly to the right and forward to obtain CHOKE position.

Ignition Switch (Fig. 9) — Switch is part of battery 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.

Light Switch (Fig. 9) — Two position switch for actuating headlights. Lights will not function unless engine is running as current is supplied by the engine alternator.

Deck Engagement Switch (Fig. 9) — Toggle switch (Pull out and up to engage) releases blade brake and engages electromagnetic clutch to drive cutter blade.

Brake Pedal (Fig. 9) — Foot operated pedal, which when depressed, actuates a disc brake assembly at the side of the transmission. Clutch pedal should also be depressed while braking to achieve maximum brake effectiveness.

Parking Brake (Fig. 10) — Parking brake is used in conjunction with standard brake assembly. When brake pedal is depressed and parking brake lever is pulled upward, a latch plate secures the brake assembly in the engaged position preventing the machine from moving.

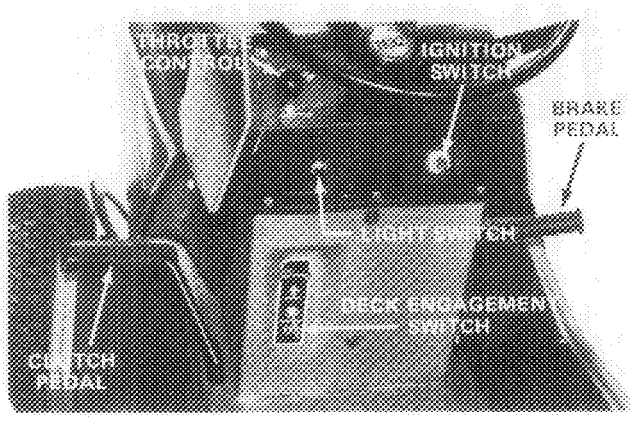


Figure 9

Note: Transmission must be in neutral to engage parking brake.

Gear Shift (Fig. 10) — Transmission has five forward speeds, neutral and reverse, and has an in-line shift pattern. An interlock switch, which prevents engine from being started when transmission is in gear, is mounted on the top of the transmission.

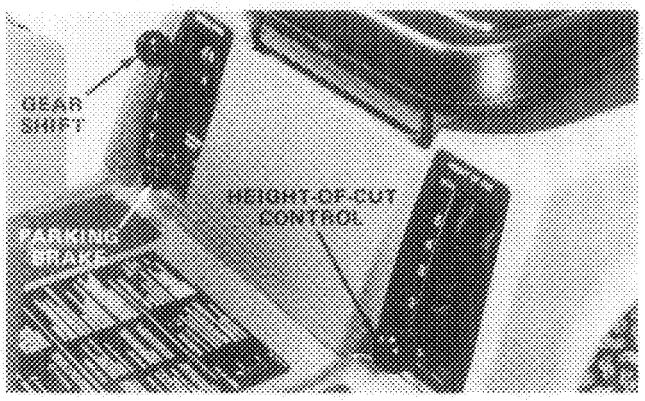


Figure 10

Height-of-Cut Control (Fig. 10) — Height-of-cut control varies the cutting height from 1 to 3 1/2 inches (25 to 85 mm) in five increments.

STARTING AND STOPPING INSTRUCTIONS

Note: Engine will not start unless deck engagement switch is DISENGAGED, shift lever is in neutral and operator is sitting on the seat.

TO START AND OPERATE MACHINE

1. Shift into neutral, move deck engagement switch 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 pull out and up on deck engagement switch 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 switch to DISENGAGE, and rotate ignition key to OFF.

2. Shift transmission to neutral and engage parking brake.

3. Remove key from ignition switch.

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 assure that drive system is functioning correctly. After the first five hours of operation, check the condition of the belts.

USING PARKING BRAKE

CAUTION

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

1. Depress brake pedal fully, shift transmission to neutral.

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

3. To release the parking brake, depress brake pedal (Fig. 9), and push parking brake lever (Fig. 10) down to return it to its disengaged position. Release brake pedal slowly.

ADJUSTING HEIGHT-OF-CUT

The height-of-cut may be set in one of five positions from approximately 1 to 3 1/2 inches (25 to 85 mm).

1. Assure the deck engagement switch is in DISENGAGE position (Fig. 9).

2. Move height-of-cut control (Fig. 10) into desired setting.

3. To engage blade for cutting, pull up and out on deck engagement switch.

OPERATING INSTRUCTIONS

GRASS DEFLECTOR

WARNING

The grass deflector and toe bar is a safety device that routes discharged material down toward the turf; therefore, do not 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.

OPERATING PROCEDURE

1. Move deck engagement switch into DISENGAGE.

2. Start the engine: refer to Starting/Stopping Instructions, page 15.

IMPORTANT: When tractor is used for the first time, operate the transmission in all gears to assure 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 or transmission damage could result.

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.

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 tractor to assure area is clear before backing.

4. To engage blade for cutting, move height-of-cut control to the desired setting, then pull out and up on deck engagement switch.

5. To stop the engine, in sequence, depress clutch and brake pedals, move throttle control to SLOW, deck engagement switch into DISENGAGE, gear shift into neutral, engage parking brake, and rotate key to OFF position.

IMPORTANT: Never leave the deck engagement switch in the engaged position when the engine is not running. Doing so with the ignition switch ON will discharge the tractor battery.

Note: Remove the ignition key and store it in a memorable place between operating periods.

GRASS CUTTING TIPS

1. When the tractor is used to cut a lawn for the first time, cut grass slightly longer than normal to assure 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 blade and remove the obstruction with a stick.

DANGER

Before removing obstruction from mower housing, move deck engagement switch 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 →			→ More often in dusty,
Check Safety Interlock	X	X		X		dirty conditions.
Check Cutter Blade	X	X	X			
Check Brake	X		X	X		
Grease Front Axle Spindles		X	X			
Lubricate Pivot Points		X	X			
Grease Rear Axle			X			
Service Air Cleaner		X	X →			→ More often in dusty,
Check Spark Plug		X	X	X		dirty conditions.
Check Battery Electrolyte Level		X	X	X		
Check Blade Drive Belt			X			
Check Traction Drive Belt			X			
Check Tire Pressure		X	X			
Drain Gasoline			X			
Clean Outside of Engine		X	X →			→ More often in dusty,
Clean Mower Housing			X			dirty conditions.
Paint Chipped Surfaces			X			
Check Interlock Switches					X	

MAINTENANCE

CAUTION

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

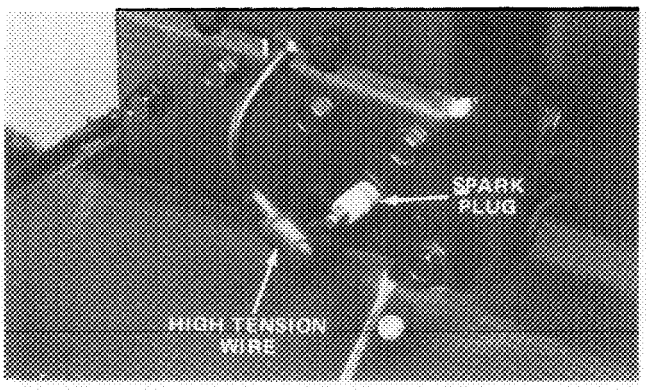


Figure 11

GREASE FRONT AXLE SPINDLES AND WHEELS

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

1. Wipe grease fittings on spindles and wheels (Fig. 12, 13) with a clean rag. If there is paint on front of fittings, scrape it off.

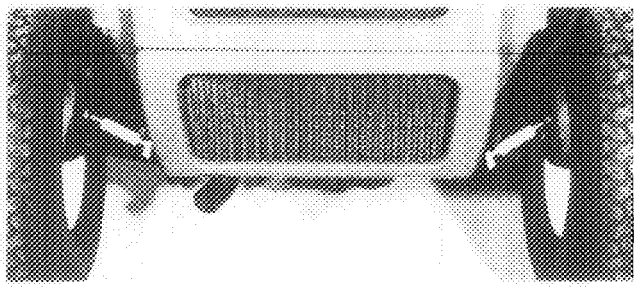


Figure 12

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. 13). Pump grease gun about four times. Wipe up any excess grease.

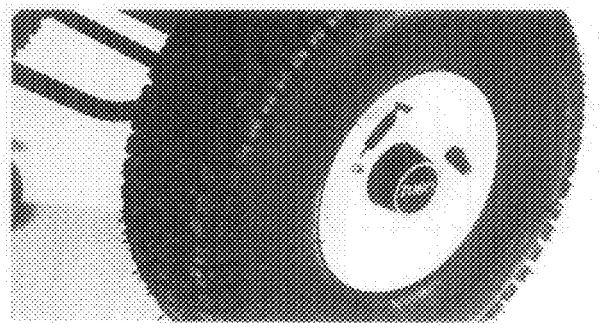


Figure 13

GREASE REAR AXLES

The rear wheels should be removed and axles greased, once a year, to prevent the formation of rust and to simplify future wheel removal. Refer to Wheel Removal, page 26.

LUBRICATE STEERING SHAFT AND PIVOT POINTS

Lubricate the steering shaft and pivot points every 25 hours with a few drops of SAE 10 oil or WD-40 spray lubricant (Fig. 14). Turn the front wheels fully to the left to position the lower follower assembly below the fuel tank to make it more easily accessible.

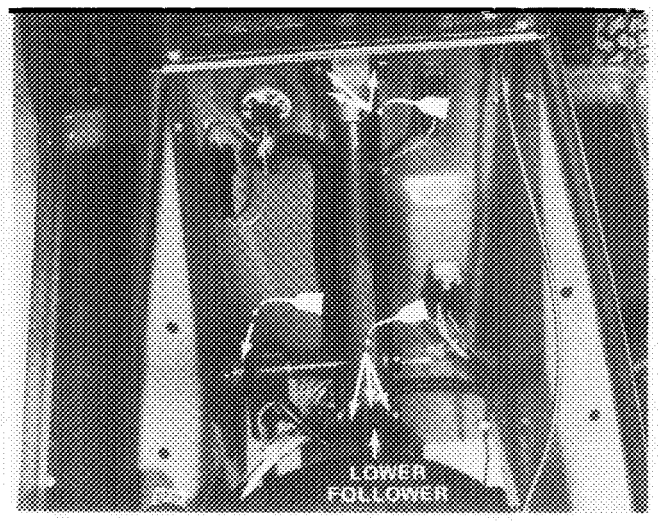


Figure 14

Note: The fuel tank has been removed in Figure 14 in order to clarify the points needing lubrication.

The tank does not have to be removed to lubricate the steering assembly.

SERVICING AIR CLEANER

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

1. Open the hood and remove the wire from spark plug.

2. Remove air cleaner knobs and cover (Fig. 15).

3. Remove foam pre-cleaner by sliding it off the cartridge.

   A. Wash foam pre-cleaner in liquid soap and warm water.

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

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

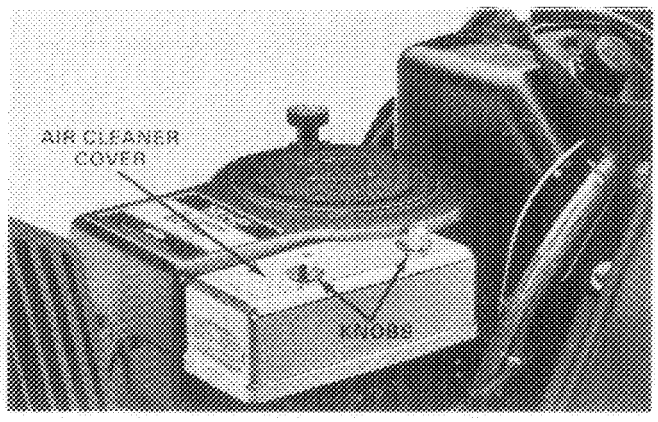


Figure 15

4. Remove (2) nuts from top of cartridge (Fig. 16).

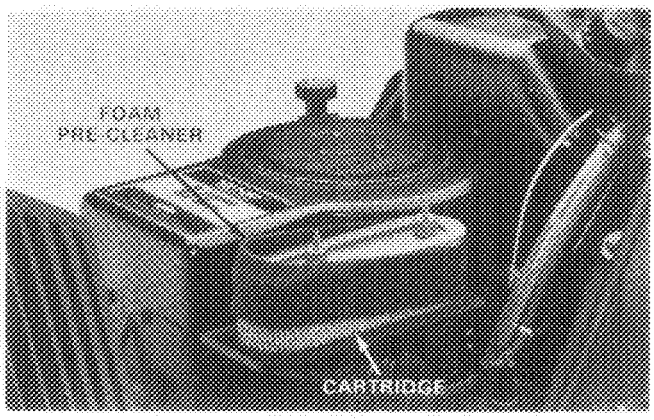


Figure 16

5. Remove cartridge and clean air cleaner body carefully to prevent dirt from entering carburetor. Brush dirt from body thru holes into duct.

6. Clean cartridge by tapping gently on flat surface.

   a. If very dirty, replace cartridge or wash in a low or non-sudsing detergent and warm water solution.

   b. Rinse thoroughly from INSIDE OUT until water is clear.

   c. Cartridge must be allowed to stand and air dry thoroughly before using.

7. Reassemble air cleaner.

CAUTION

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

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

CHANGING 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 tractor 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 in to 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; every 25 hours thereafter. Change oil more frequently when operating conditions are extremely dusty or dirty.

To change oil:

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

B. Turn engine off and place drain pan below drain plug (Fig. 17). Remove drain plug and allow all oil to flow into drain pan. Install drain plug after oil stops flowing.

C. Open hood, unscrew dipstick and add oil to crankcase. Refer to CHECK CRANKCASE OIL LEVEL, page 12. Capacity is 48 oz. (1.42 l) DO NOT OVERFILL or engine damage may result.

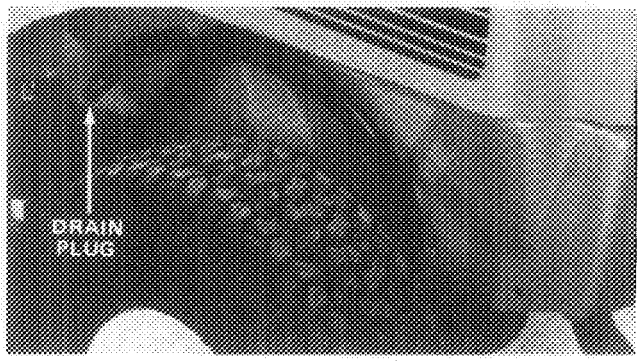


Figure 17

Use any high-quality A.P.I. classification SC, SD, SE, or MS engine oil. Recommended viscosity of oil to use is:

- Above +40° F (4° C) — Use SAE 30; 10W-30 as a substitute.
- Below +40° F (4° C) — Use SAE 5W-20 or 5W-30; SAE 10 or 10W-30 as substitutes.
- Below 0° F (-18° C) — Use SAE 10 or 10W-30 diluted 10% with kerosene.

FUEL FILTER REPLACEMENT

An in-line filter is incorporated into the fuel line between the fuel tank and carburetor (Fig. 18). Use the following procedures should replacement become necessary:

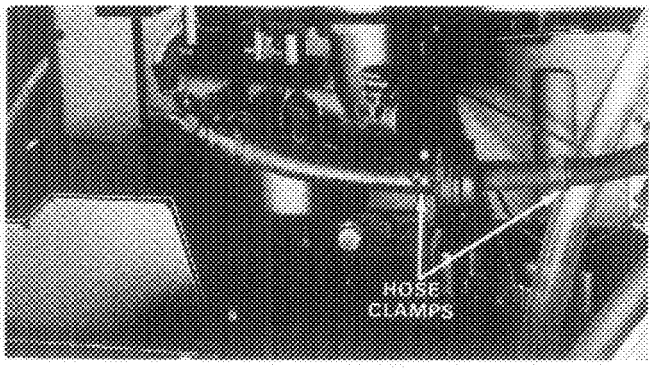


Figure 18

1. Open the hood.

2. Loosen the hose clamp on the carburetor side of filter and remove the fuel line from the filter.

3. Place a drain pan under filter, loosen the remaining hose clamp and remove filter.

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, cigarettte, or a pipe when handling gasoline.

4. Install the new filter with arrow on the filter body pointing towards the carburetor.

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 RJ19LM.

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

1. Open the hood.

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

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

4. Check condition of side electrode, center electrode, and center electrode insulator to assure 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.

5. Set air gap between center and side electrodes at 0.030 of an inch (0.762 mm) (Fig. 19). Install correctly gapped spark plug w/gasket seal, and tighten plug to 15 ft-lb (20.4 N·m). If torque wrench is not used, tighten plug firmly.

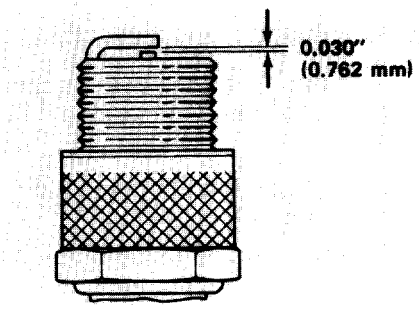


Figure 19

6. 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.

ADJUSTING THROTTLE-CHOKE CONTROL

Proper choke operation is dependent upon proper adjustment of remote controls. Before adjusting the carburetor, assure the throttle-choke control is operating properly.

1. Open the hood, remove the screws holding air cleaner in place and lift air cleaner cover off air cleaner.

2. Move remote control lever to CHOKE position and check the position of the choke butterfly; it should be fully closed (Fig. 20).

3. Move remote control lever to FAST position. The butterfly should be in the fully open position (Fig. 20).

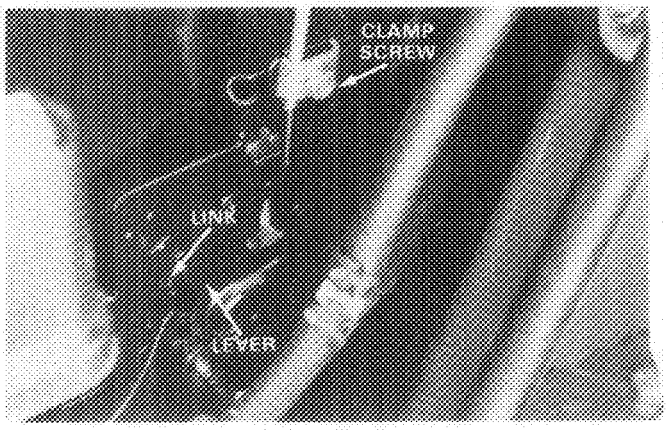


Figure 20

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 CHOKE position.

2. Loosen the throttle cable clamp screw (Fig. 20) and move the control cable casing and wire until the throttle lever touches link.

3. Tighten the cable clamp and assemble the air cleaner cover to the air cleaner.

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. Needle Valve (Fig. 21) – Close valve by gently rotating it clockwise.

IMPORTANT: Do not close the needle valve too tight because the valve and seat in carburetor will likely be damaged.

2. Rotate – open – the needle valve 2 turns counterclockwise (Fig. 21).

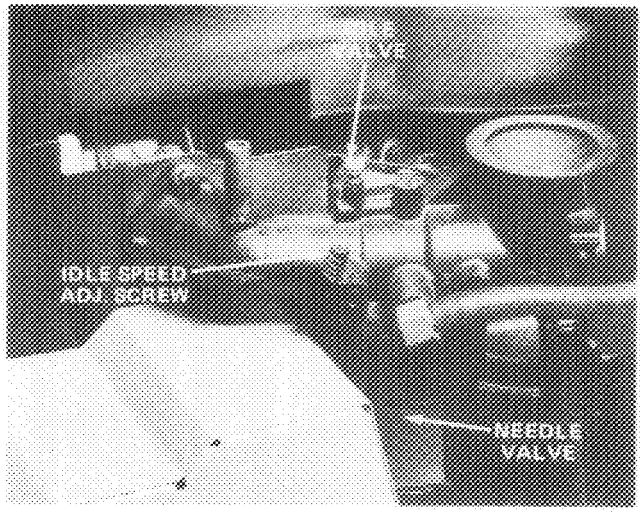


Figure 21

Note: The needle valve setting is an approximate; however, the setting will allow engine to be started so carburetor can be fine tuned – steps 3-9.

WARNING

Engine must be running so final adjustment of the carburetor can be performed. To guard against possible personal injury, move deck engagement switch 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, discharge area, and any rotating engine parts.

3. Start engine and let it warm up for approximately two minutes. Next, move throttle control into FAST detent.

IMPORTANT: Air cleaner must be installed on the engine whenever high speed is being adjusted. The air cleaner mounting screw must also be installed when engine is run.

4. Rotate needle valve (Fig. 21) clockwise, 1/8 turn at a time, until engine starts to lose speed. Let engine react to each 1/8 turn setting.

5. Rotate needle valve (Fig. 21) counterclockwise – out – 1/8 turn at a time, until engine first runs rough. Let engine react to each 1/8 turn setting.

6. Rotate needle valve (Fig. 21) clockwise – in – very slowly until engine starts to run smoothly. This setting, under no load, may be slightly rich; however; the slightly rich setting will assure proper operation when engine is under load.

7. Move throttle control backward so engine idles. If engine stalls, rotate idle adjusting screw until engine speed increases (1750 rpm).

Note: Rotate idle adjusting screw clockwise to increase idle rpm. By contrast, rotate idle adjusting screw counterclockwise to decrease idle rpm.

8. Turn idle valve in (lean) and out (rich) slowly until engine idles smoothly.

9. Check carburetor adjustment by quickly moving throttle control from SLOW to FAST. Engine speed should increase without hesitation. If engine tends to stall or die out, rotate needle valve 1/8 turn counterclockwise until engine accelerates smoothly.

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

starting. Keep key in a memorable place so it is not lost accidentally.

SERVICING CUTTER BLADE

To service blade:

1. Insure engine is shut off, lock parking brake, open the hood and remove the wire from the spark plug.

CAUTION

Stop the machine and examine the cutter blade for damage and loss of torque of the nut securing the blade to the spindle shaft whenever the blade strikes an immoveable object. Open the hood and disconnect the spark plug lead, engage the parking brake and disengage the cutter blade prior to examining the blade. If blade is cracked, badly bent or twisted or severely eroded (Fig. 25), replace the blade. Always use genuine Toro replacement blades to assure safety and optimum performance. NEVER USE WILL FIT REPLACEMENT BLADES. See To Service Blade below.

2. Set cutting unit down in lowest height-of-cut position, remove the hair pin cotters and washers securing the deck spring straps on both sides (Fig. 22) and pull straps off clevis pins.

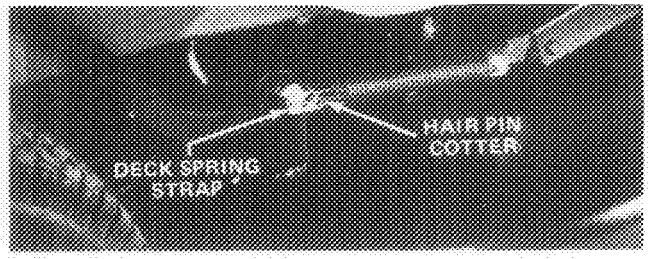


Figure 22

3. Slide deck forward and slip the belt off the cutting unit spindle pulley.

4. Turn tractor front wheels fully to the right, turn the cutting unit so the rear wheels face the right side of the tractor and pull the unit out from under the machine (Fig. 23).

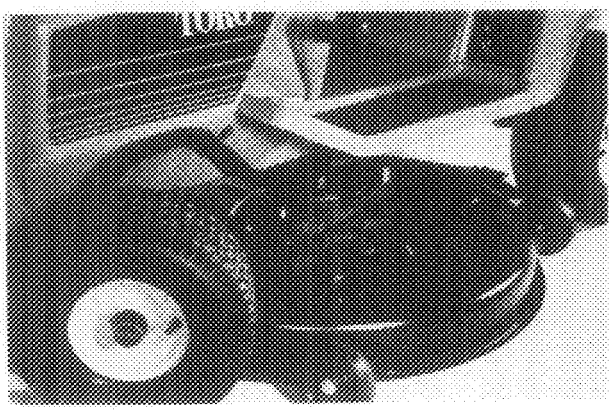


Figure 23

5. Turn cutting unit on its side, grasp the end of the blade with a rag or thickly padded glove; then remove the locknut, anti-scalp cup and blade (Fig. 24).

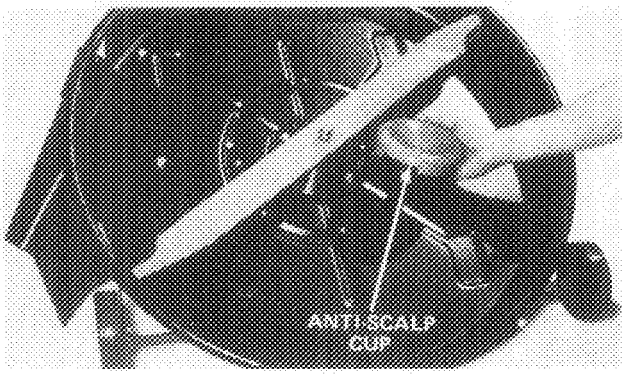


Figure 24

6. Examine cutting ends of the blade carefully, especially where the flat and curved parts of the blade meet (Fig. 25A). Since sand and abrasive material can wear away the metal that connects the flat and curved parts of the blade, check the blade before using the mower. If wear is noticed (Fig. 25B), replace the blade.

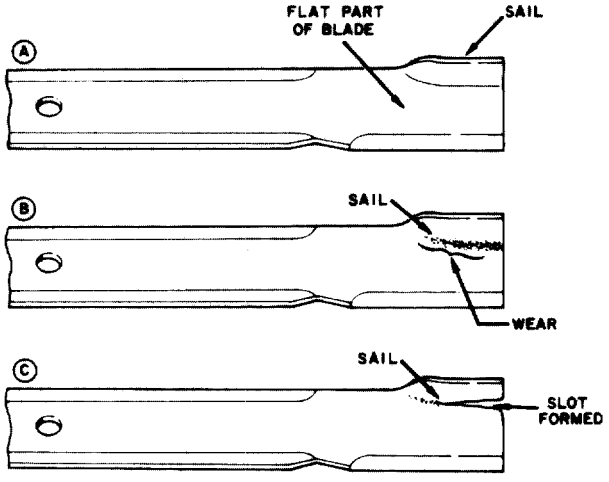


Figure 25

CAUTION

If blade is allowed to wear, a slot will form between the sail and flat part of the blade (Fig. 25C). Eventually, a piece of the blade may break off and be thrown from under the housing, possibly resulting in serious injury to yourself or bystander.

Note: Since lock nut is tightened at the factory, it may be difficult to remove the nut. If nut cannot be removed, contact an Authorized TORO Service Dealer for assistance.

7. Using a file, sharpen cutting edge at both ends of the blade (Fig. 26). File only top side of blade, not the bottom side.

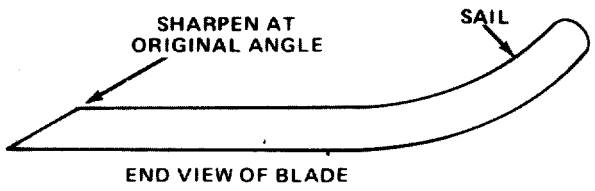


Figure 26

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

9. In sequence, install blade, anti-scalp cup and locknut (Fig. 24). Tighten locknut to 50-60 ft/lb (68-81 N·m).

IMPORTANT: Make sure blade sail is facing top of mower housing and cutting edge of blade is away from top of mower housing (Fig. 24). While lock nut is tightened, move blade slightly so it seats between sides of blade retainer.

10. Mount the cutting unit to the tractor. Refer to Install Cutting Unit, page 23, for proper procedures.

INSTALL CUTTING UNIT

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

2. Set the cutting unit down on the wheels and rollers and slide the cutting unit (front end first) under the tractor (Fig. 27).

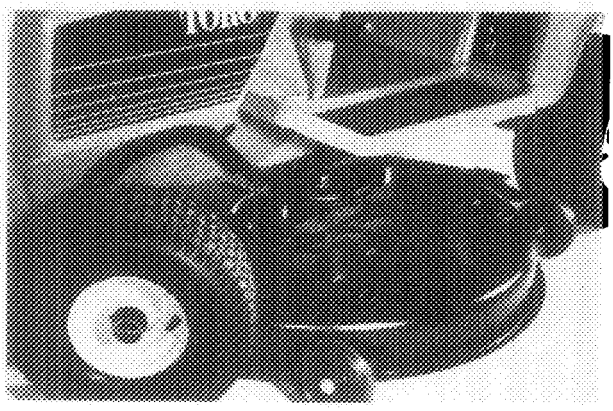


Figure 27

3. Insure the height-of-cut lever is in the lowest height setting. Position the cutting unit so the parallel links bisect the front brackets on each side and insert the clevis pins into the bracket holes from the inside toward the outside (Fig. 27).

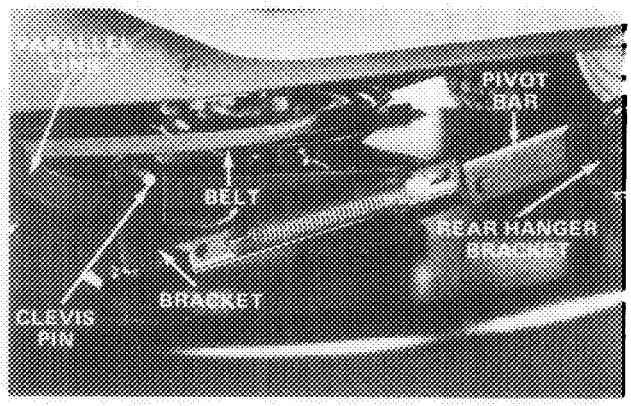


Figure 28

4. Slip the cutting unit drive belt around the spindle drive pulley, then lift the rear of the cutting unit and position the rear hanger brackets so they just rest over the top of the pins extending out from the pivot bar (Fig. 28). Insure belt is installed on front engine pulley.

5. Pull the deck spring straps forward while pushing deck rearward and position the clevis pins through the strap holes. Install a flat washer and a hair pin cotter to secure the assembly (Fig. 29).

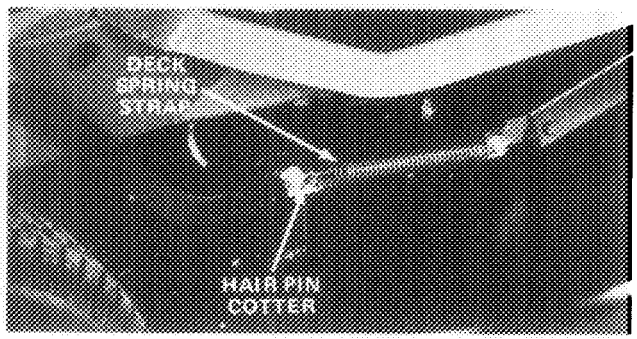


Figure 29

MAINTENANCE

CLEANING UNDERSIDE OF MOWER HOUSING

To assure a good quality-of-cut and efficient grass bagging, underside of mower housing and inside of discharge area must be kept clean. Whenever the mower is removed, clean out debris with a scraper and hose and apply a coat of paste wax on inside of mower housing and grass deflector. This will retard corrosion and prevent grass and dirt from sticking on inside of housing.

REPLACING BLADE DRIVE BELT
(Belt from engine to deck)

1. Lock parking brake, open hood and remove wire from spark plug.

2. Lower cutting unit to the lowest height-of-cut setting.

3. Remove hair pin cotters and flat washers from the deck spring straps and remove straps from the pins (Fig. 30).

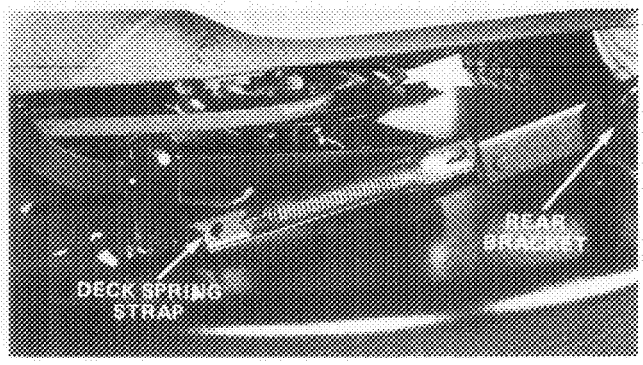


Figure 30

4. Slide the cutting unit forward and remove the belt from both front and rear pulleys.

5. Insure rear cutting unit brackets (Fig. 30) are resting on the pins and install the new belt.

6. Slide the deck rearward, remount the deck spring straps, flat washers and hair pin cotters.

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 tractor on level surface, lock parking brake, open hood and remove spark plug wire.

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

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

4. If blade tip height is not within 1/8 inch (3 mm), level cutting unit by loosening right hand pivot bar retainer hex nuts and raising or lowering the retainer (Fig. 31).

Note: The right rear wheel may have to be removed.

5. Assure blade tip height is within 1/8 inch (3 mm) and retighten hex nuts.

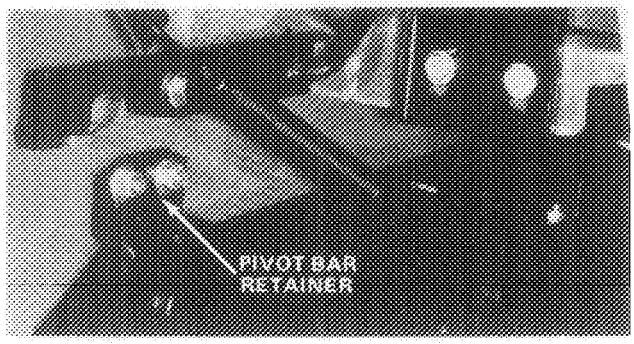


Figure 31

REPLACING TRACTION BELT

1. Remove the cutting unit. Refer to Replacing Blade Drive Belt, page 24.

2. Insure the parking brake is locked and place blocks in front of and behind one rear wheel.

3. Reach under the tractor frame just forward of the rear wheels, grasp the idler pulley assembly, (Fig. 32) pull on it to relieve tension on the belt and remove the belt from the belt guide and idler pulley (Fig. 32).

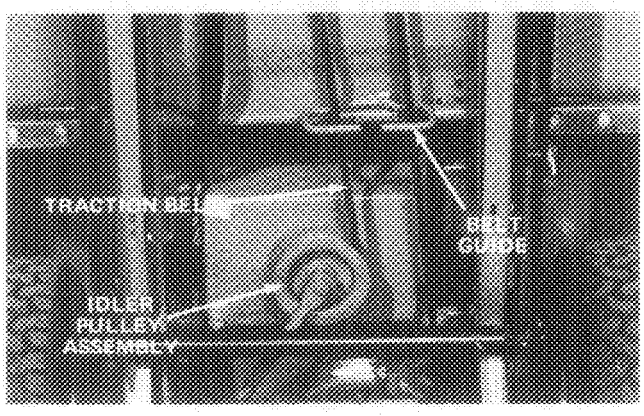


Figure 32

CAUTION

The idler pulley arm is under heavy spring tension. Hold the arm firmly while allowing the arm to return to its relieved position.

4. Disconnect the bolt retaining the wire tie down from the electromagnetic blade clutch. Disconnect the in-line wire connector (Fig. 33).

5. Remove the bolt securing the blade clutch assembly (Fig. 33) at the front of the machine and remove the assembly. Note how the clutch is prevented from rotating by a steel post welded to the underside of the tractor.

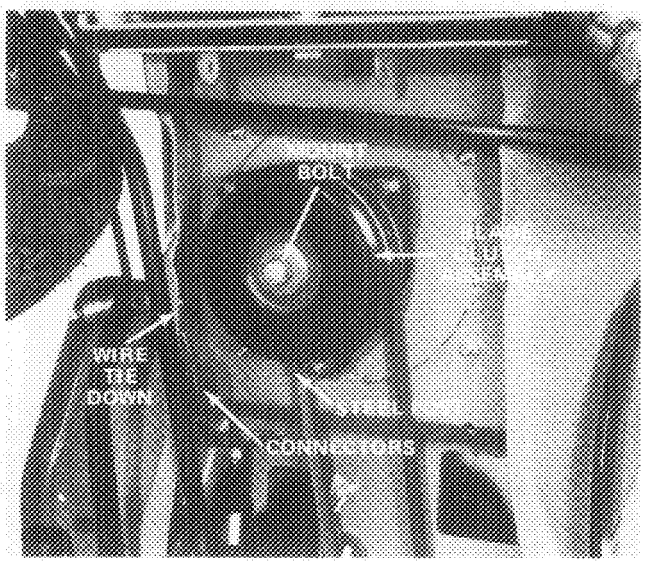


Figure 33

Note: If there is difficulty in removing blade clutch mount bolt with use of standard socket wrench, contact a Toro Service Dealer for assistance. An air impact wrench may be necessary.

6. Slip the belt off the engine pulley, then remove it from the traction clutch pulley on top of the transmission at the rear of the machine.

7. Slide the belt between the top of the traction clutch assembly and the clutch actuator bar (Fig. 34).

Note: There may not be enough clearance between the actuator and clutch to remove the belt. Disconnect the clutch pedal linkage to gain more clearance, if necessary.

8. Assemble the new belt to the machine by reversing the disassembly procedures. Apply grease or "NEVER SEEZE" to crankshaft before installing blade clutch. Reassemble the clutch insuring that the slot in the clutch fits over the steel post. Torque the mount bolt for the blade clutch assembly to 60 ft-lb (81 N·m).

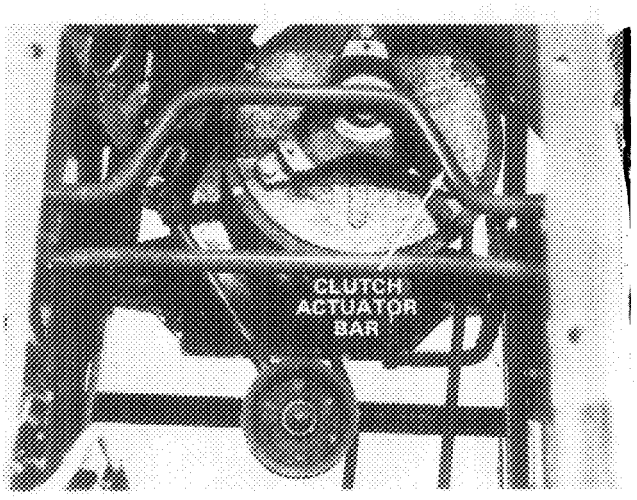


Figure 34

9. Reconnect the wire connectors and remount the wire tie down to the tractor body. Make sure that all wires are positioned away from moving parts.

BRAKE ADJUSTMENT

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 spark plug wire.

2. Tighten locknut approximately 1/4 turn clockwise (Fig. 35).

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

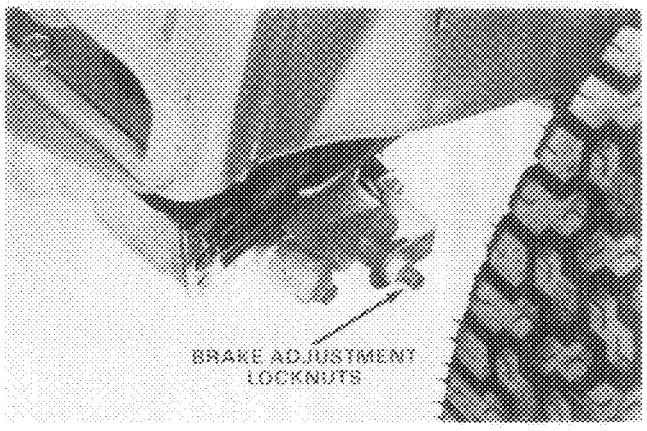


Figure 35

WHEEL REMOVAL

Front Wheels:

1. Assure parking brake is locked and block one rear wheel.

2. Place jack under front axle and raise wheel off floor.

3. Use a pry bar to lever the hub cap off the axle (Fig. 36).

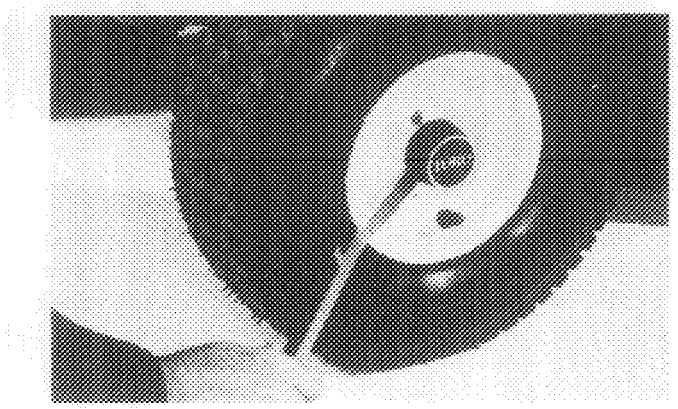


Figure 36

4. Remove the cotter pin and flat washer (Fig. 37) and remove the wheel from the axle.

5. Assemble in reverse order.

Rear Wheels:

1. Assure parking brake is locked and block the front wheels.

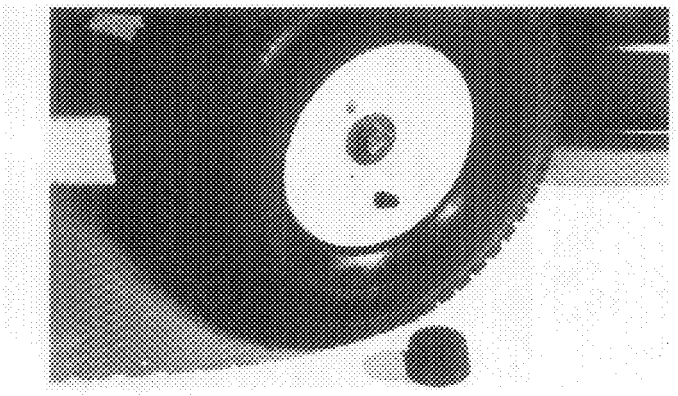


Figure 37

2. Place a block of wood between jack and rear axle and raise wheel off floor.

IMPORTANT: Place jack as close as possible to inside of wheel to prevent damage to transmission.

3. Use a pry bar to lever the hub cap off the axle.

4. Remove the capscrew from the axle (Fig. 38).

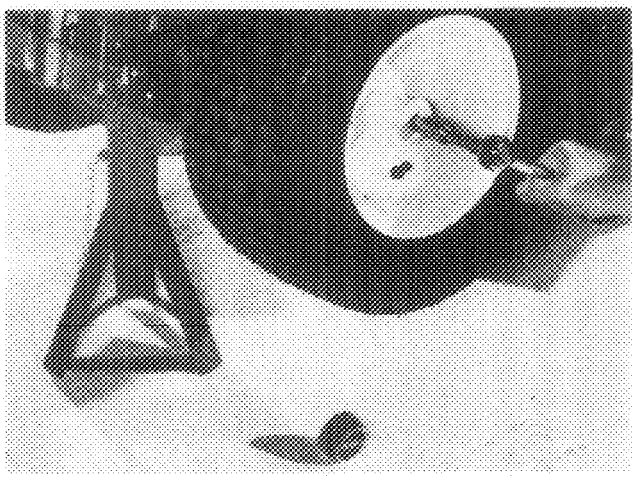


Figure 38

5. Assemble in reverse order of the disassembly procedures. Use grease or "NEVER-SEEZE" on axle before mounting wheel. Insure woodruff key is installed. Tighten the mounting capscrew until the wheel hub bottoms out on the end of the axle. Torque to 30 ft-lb (40.7 N·m).

CHECKING SAFETY INTERLOCK SYSTEM

The purpose of the safety interlock system is to prevent the engine from cranking or starting unless the operator is on the seat, the transmission shifted into neutral and the cutting unit deck engagement switch is in the Disengage position. In addition, the engine will stop if the operator gets off the seat when the cutter blade drive control is engaged or transmission is in gear. To assure interlock system is functioning correctly, check it before each use of the tractor. Have the safety interlock switches checked by an Authorized TORO Service Dealer every two years to assure safe operation of the tractor.

1. Sit on seat and move shift control into neutral position. Engage the parking brake to prevent movement of the tractor.

2. Move deck engagement switch (Fig. 39) to the ENGAGE position. Rotate the ignition key to START. Engine should not crank. If engine cranks, 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 switch to DISENGAGE position (Fig. 39), push clutch in and place shift control into one of the gear selections (Fig. 40). Rotate the 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 4.

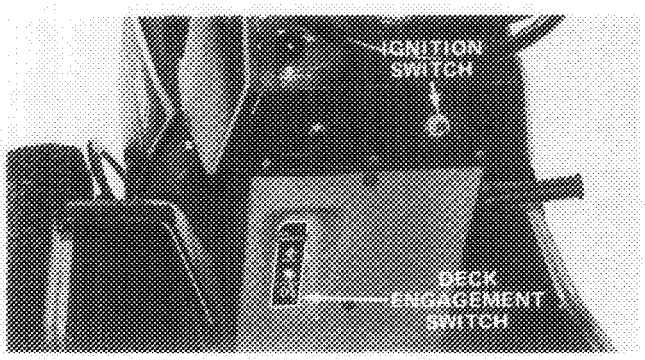


Figure 39

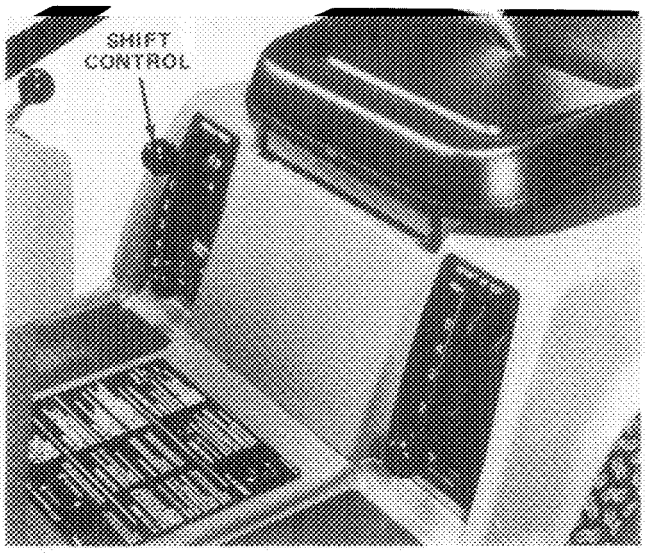


Figure 40

4. Move shift control (Fig. 40) into neutral and deck engegement switch (Fig. 39) to DISENGAGE position. Engage the parking brake to prevent movement of the tractor. Rotate ignition key to START position and start engine. Place the deck engagement switch in ENGAGE position and carefully raise off the seat: the engine should stop running. 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 seat, the interlock system is functioning correctly.

WARNING

Do not operate the tractor if the interlock system is malfunctioning because it is a safety device, designed for protection.

BATTERY CHARGING SYSTEM

An AGC 7-1/2 Amp Fuse (Fig. 41) is incorporated in the charging circuit as a protective device against alternator damage caused by possible "short-outs" in the wiring harness. If the battery is fully charged, but fails to crank the engine, have the electrical system checked by an Authorized TORO Service Dealer.

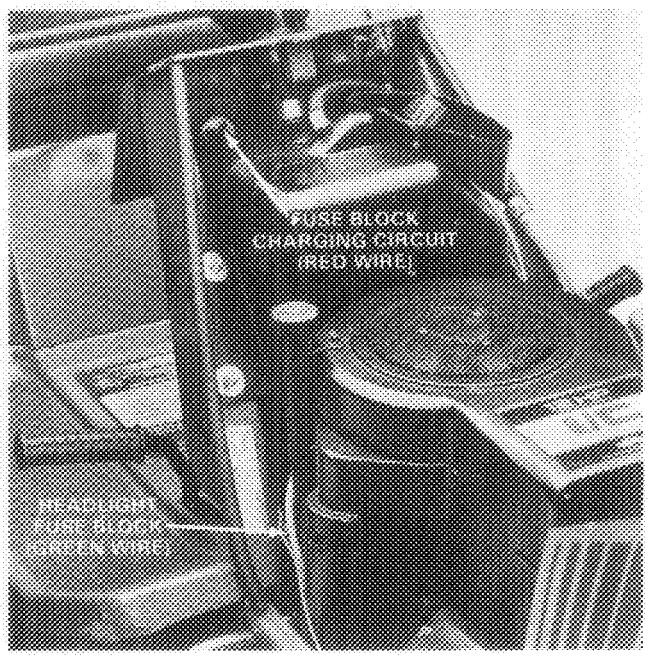


Figure 41

HEADLIGHT CIRCUIT

Power for the headlights is provided by electric current from the engine alternator; therefore, the headlights will not function unless the engine is operating. An AGC 7-1/2 Amp Fuse (Fig. 41) is incorporated in the headlight circuit as a protective device against alternator damage caused by possible "short-outs" in the wiring harness. If the headlights are inoperative, raise hood, separate fuse block and check fuse. If fuse is defective, check wiring for "short-outs". If none can be ascertained, contact your Authorized TORO Service Dealer for assistance.

PREPARING MOWER FOR STORAGE

1. Drain gasoline from fuel tank and fuel line: refer to Fuel Filter Replacement, page 19. Next, start engine and let it run at idle speed until it stops and all gasoline is used. Replace the fuel filter.

Note: All gasoline must be expended to prevent gum-like varnish deposits from forming in the carburetor, fuel line, and fuel tank. Such deposits, if allowed to form, will cause starting problems and poor engine operation.

MAINTENANCE

2. Pull wire off 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 slowly 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 INSTALL WIRE ON SPARK PLUG.

3. Drain oil from crankcase and refill with proper viscosity oil: refer to Changing Crankcase Oil, page 19.

4. 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 tractor, engine, shrouding, and top of mower housing.

5. Clean underside of mower housing: refer to Cleaning Underside of Mower Housing, page 24.

6. Check condition of blade: refer to Servicing Cutter Blade, page 22.

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

8. Lubricate wheels and spindles with grease: refer to Grease Front Axle Spindles and Wheels, page 17.

9. Check air cleaner element: refer to Servicing Air Cleaner, page 18.

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

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

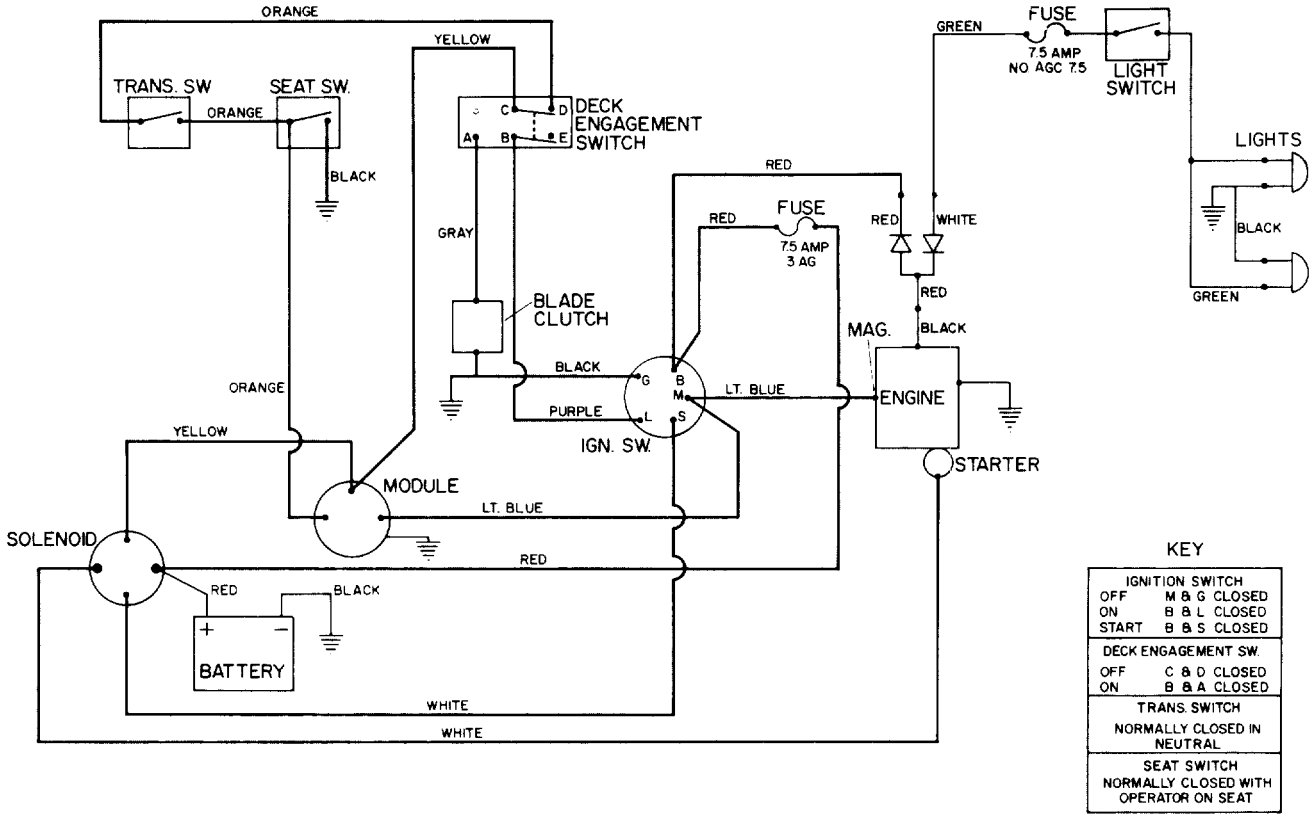
11. Remove the battery from the machine, recharge it and store it in a cool, dry place. Recharge it every 30 days to prevent it from discharging. Refer to Activating and Charging Battery, page 12.

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

12. Place blocks under the front and rear axles to raise the wheels off floor and prevent tire deterioration.

13. Store the tractor in a clean, dry place. Remove key from ignition switch and keep it in a memorable place. Cover the rider to protect it and keep it clean.

WIRING DIAGRAM



TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine does not start, starts hard, loses power, or fails to keep running.	1. Gas tank is empty.	1. Fill fuel tank with gasoline.
	2. Transmission is in gear.	2. Shift transmission into neutral.
	3. Deck engagement switch is in ENGAGE detent.	3. Move deck engagement switch into DISENGAGE detent.
	4. Spark plug is loose.	4. Tighten plug to 15 ft-lb (20.4 N·m).
	5. Spark plug wire is loose or disconnected from spark plug.	5. Install high tension wire on spark plug.
	6. Spark plug gap is incorrect.	6. Set gap between electrodes at 0.030 of an inch (0.762 mm).
	7. Spark plug is pitted, fouled, or defective in some other way.	7. Install new correctly gapped spark plug.
	8. Wrong spark plug is used.	8. Install correct spark plug.
	9. Electrical connections are loose.	9. Check electrical system to assure good contact.
	10. Carburetor is adjusted incorrectly.	10. Adjust the carburetor.
	11. Air cleaner is dirty.	11. Clean the air cleaner element.
	12. Plugged fuel filter.	12. Refer to Fuel Filter Replacement, page 19.
	13. Dirt, water or stale fuel in fuel system.	13. Have tractor serviced by Authorized Toro Wheel Horse Service Dealer.
	14. Dead battery.	14. Charge the battery.
	15. Module or switch is defective.	15. Have tractor serviced by Authorized Toro Wheel Horse Service Dealer.
Engine does not idle or idles poorly.	1. Air cleaner is dirty.	1. Clean air cleaner element.
	2. Oil level in crankcase is low.	2. Add oil to crankcase.
	3. Cooling fins and air passages under engine blower housing are plugged.	3. Remove obstruction from cooling fins and air passages.
	4. Idle speed is too low or high speed mixture is incorrect.	4. Adjust the carburetor.
	5. Plugged fuel filter.	5. Refer to Fuel Filter Replacement, page 19.
	6. Dirt, water or stale fuel is in fuel system	6. Have tractor serviced by Authorized Toro Wheel Horse Service Dealer.
	7. Spark plug is pitted, fouled or defective in some other way.	7. Install new correctly gapped spark plug.

TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine loses power	1. Oil level in crankcase is low.	1. Add oil to crankcase.
	2. Cooling fins and air passages under engine blower housing are plugged.	2. Remove obstruction from cooling fins and air passages.
	3. Engine load is excessive.	3. Shift into lower gear to reduce load.
	4. Air cleaner is dirty.	4. Clean air cleaner element.
	5. Plugged fuel filter.	5. Refer to Fuel Filter Replacement, page 19.
	6. Dirt or water is in fuel system.	6. Have tractor serviced by Authorized Toro Wheel Horse Service Dealer.
	7. Carburetor is adjusted incorrectly.	7. Adjust the carburetor.
	8. Spark plug is pitted, fouled or defective in some other way.	8. Install new correctly gapped spark plug.
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.
Tractor vibrates abnormally.	1. Engine mounting bolts are loose.	1. Tighten engine mounting bolts.
	2. Loose blade clutch pulley, idler pulley or blade pulley.	2. Tighten the appropriate pulley.
	3. Cutter blade is unbalanced.	3. Install new cutter blade.
	4. Lock nut holding blade is loose.	4. Tighten nut to 50-60 ft-lb (68-81 N·m).
	5. Drive pulley is damaged.	5. 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.
	3. Faulty blade clutch assembly or damaged pulley.	3. Have tractor serviced by Authorized Toro Wheel Horse Service Dealer.
Tractor does not drive.	1. Traction drive 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. Transmission does not shift gear.	3, 4. Have tractor serviced by Authorized Toro Wheel Horse Service Dealer.
	4. Damaged clutch or pulley.	

MAINTENANCE RECORD

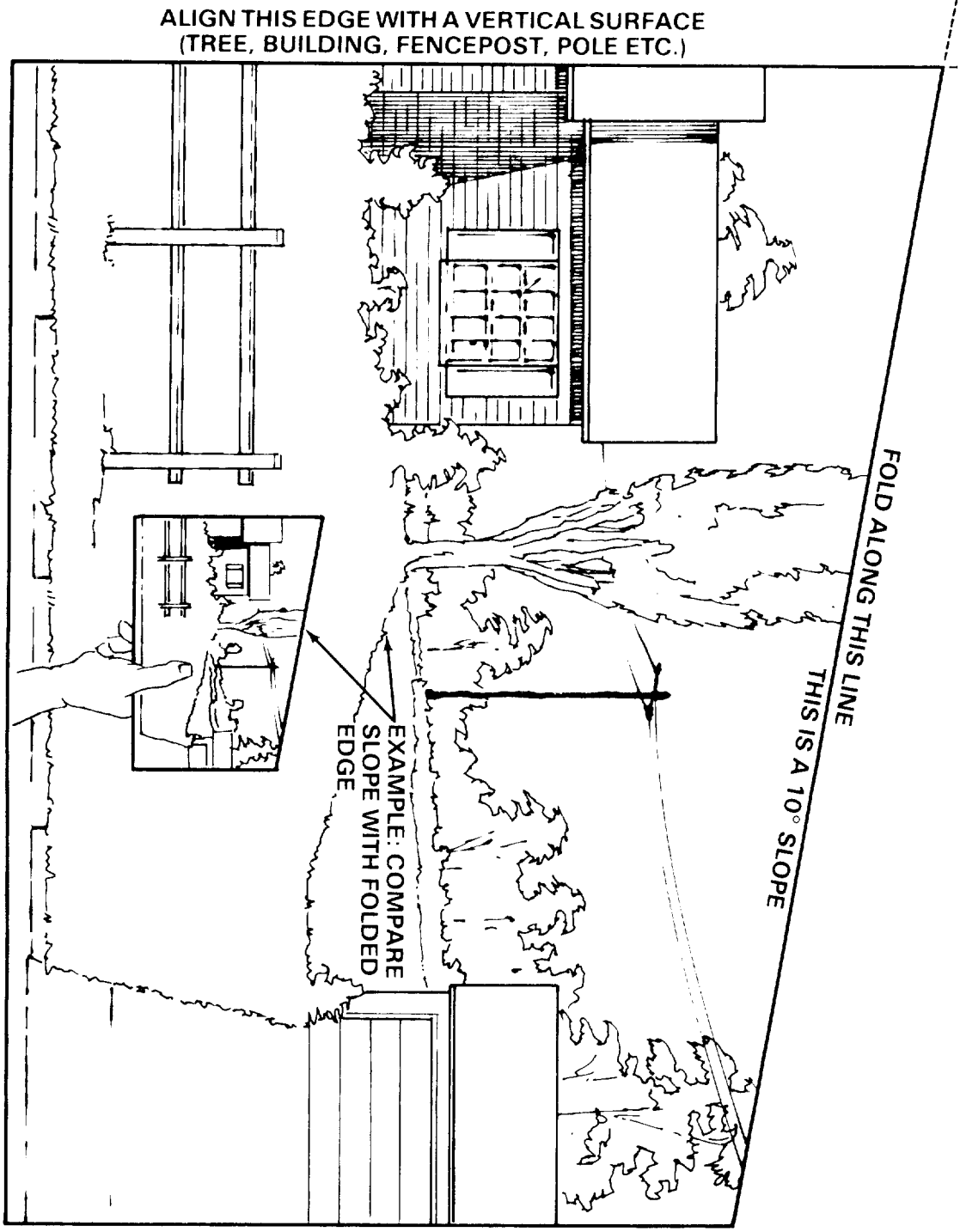
Date	Hours Used	Oil Change	Air Cleaner Service	Lubrication	Sharpen Blade	Winter Storage	Spring Service	Spark Plug Gap

MAINTENANCE RECORD

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

10° SLOPE CHART

Read all safety instructions on pages 3–6



Your TORO Wheel Horse does more at home when it's equipped with TORO Wheel Horse attachments.

Product information and specifications are shown herein as of the time of printing. Toro Wheel Horse reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligation.

Right at home.



Wheel Horse®
Tractors & Riding Mowers