1977

FORM NO. 3310-919

TORO®

MODEL: 20562-700001 & UP
MODEL: 20673-700001 & UP

OPERATOR'S MANUAL

21" GRASSMASTER™

FINGERTIP START AND *KEY-LECTRIC*® START



The GRASSMASTER meets or exceeds the Outdoor Power Equipment Institute's safety standards for rotary mowers; thus, Toro proudly displays the OPEI safety seal.

MODEL CONFORMS TO SAFETY STANDARDS PROGRAM — SPONSORED BY OPEI Outdoor Power Equipment Institute — MODEL TESTED BY INDEPENDENT LABORATORY

To assure maximum safety, optimum performance, and to gain knowledge of the mower, it is essential that you or any other operator of the mower read and understand the contents of this manual before the engine is started. Pay particular attention to the instructions highlighted by the red, safety symbol. Failure to comply with the safety instructions may result in personal injury.

PRICE $1.00

foreword

The GRASSMASTER, the most innovative walk power mower, provides a new degree of mowing efficiency and convenience. If the mower is set up, operated and maintained properly, it will give long, dependable service.

To familiarize yourself with safety, set-up, operating and maintenance instructions, read this manual thoroughly. The major sections of this manual are:

1. Safety Instructions
2. Set-up Instructions
3. Before Operating
4. Controls
5. Operating Instructions
6. Maintenance
7. Trouble Shooting

Safety, mechanical, and some general information in this manual is emphasized. DANGER, WARNING, and CAUTION identify the safety messages. Whenever the red safety symbol appears, it is followed by a safety message that must be understood. For complete details concerning safety, read the safety instructions on pages 3 and 4. IMPORTANT identifies special mechanical information and NOTE identifies general information worthy of special attention.

If help — concerning safety, set-up, operation and maintenance — is ever needed, contact the local Authorized TORO Service Dealer or Distributor. Refer to the "Yellow Pages" for assistance. In addition to skilled service technicians, the dealer and distributor have other TORO Products, as well as factory approved accessories and replacement parts. Keep your Toro all TORO. Buy genuine TORO replacement parts and accessories.

table of contents

	Page
Safety Instructions	3
Safety Decals	4
Specifications	5
Loose Parts	5
Set-Up Instructions	6-7
Before Operating	7-8
Fill Crankcase With Oil	7
Fill Fuel Tank With Gasoline	8
Controls	9
Operating Instructions	10-15
Adjust Height-of-Cut	10
Operating Characteristics and Tips	10
Bagging	10-12
Mulching	12-13
Starting/Stopping the Engine	13
Auxiliary Starting Method (Key Start Model)	14
Using Wash-Out Port	14
Maintenance	15-23
Lubrication	15
Servicing Air Cleaner	16
Replacing Spark Plug	16
Draining Gasoline	17
Changing Crankcase Oil	17
Inspecting Cutter Blade For Damage	18
Sharpening or Replacing Cutter Blade	18
Cleaning Mower Housing	19
Adjusting Throttle Control	19
Checking Gear Case	20
Adjusting Traction Control	20
Adjusting Recoil Traction Lockout	20
Increasing Traction	21
Charging Battery	22
Preparing Mower For Storage	22
Trouble Shooting	24-25
Identification and Ordering	26
The Toro Promise	Back Cover

COPYRIGHT 1976 BY
The Toro Company
MINNEAPOLIS, MINN. 55420 — U S A

safety instructions

The GRASSMASTER was tested and certified by an independent laboratory for compliance with the B71.1a 1974 specifications of the American National Standards Institute. However, improper use or maintenance by the operator or owner of the mower can still result in injury. To reduce the potential for any injury, comply with the following safety instructions.

BEFORE OPERATING

1. Operate the mower only after reading this manual. A replacement manual is available by sending complete model and serial number to: The Toro Company, 8111 Lyndale Avenue South, Minneapolis, Minnesota 55420. Attn: Publications

2. Never allow children to operate the mower or adults to operate it without proper instructions.

3. Become familiar with the controls and know how to stop the engine quickly.

4. Keep everyone, especially children and pets, away from the area of operation. Remove sticks, stones, wire and any other debris that might be picked up and thrown by the blade.

5. Keep all shields and safety devices in place. Before operating mower, check it for damage and abnormal wear. If a shield, safety device or decal is damaged, repair or replace it before operation is commenced.

6. Wear long pants and substantial shoes. Do not operate mower while wearing sandals, tennis shoes, sneakers or shorts. Do not wear loose fitting clothing that could get caught in moving parts.

7. If long grass will be cut, set height-of-cut in highest position. After mowing, reinspect the area and remove all debris. Then lower the height-of-cut and mow grass again.

8. Since gasoline is highly flammable, handle it carefully.

   A. Use an approved gasoline container.
   B. Do not fill fuel tank when engine is hot or running.
   C. Do not smoke while handling gasoline.
   D. Fill fuel tank outdoors and up to about one-half inch from the top of the tank, not the filler neck.
   E. Wipe up any spilled gasoline.

9. Move traction control into DISENGAGE detent before trying to start engine. Engine will not start when traction control is in the ENGAGE position.

WHILE OPERATING

10. Cutting grass with a rotary mower demands attention. **Always maintain secure footing, balance and control.**

11. Cut grass during the daytime or when there is adequate artificial light. Cut grass slopes from side to side. Avoid slopes when grass is wet.

12. Keep face, hands and feet away from the mower housing, cutter blade and self-propelled drive when the engine is running. Stay behind the handle until engine and all moving parts stop.

13. When operating mower without the bag – mulching – the rear discharge door must be closed. Whenever grass is being bagged, the engine must be shut off and the rear discharge door closed before the bag is removed and emptied.

14. If the discharge opening is clogged, shut engine off and wait for all moving parts to stop. Disconnect high tension wire from the spark plug and clear the obstruction.

15. Since the blade rotates for a few seconds after throttle control is moved to STOP, stay behind the handle until all moving parts stop.

16. If a solid object is hit by the blade or if mower vibrates abnormally, shut engine off and disconnect high tension wire from the spark plug. Keep wire away from the plug to prevent possibility of accidental starting. Then check mower for possible damage, bent blade, an obstruction or loose parts. Repair the mower before using it again.

17. Stop engine before adjusting the height-of- cut.

18. If a gravel driveway, road or side walk must be crossed, stop the engine so loose sand and rocks are not thrown.

19. Before leaving the operator's position – behind the handle – move traction control into DISENGAGE detent, stop the engine and wait for all moving parts to stop. Do not walk in front of the mower while the engine is running. Disconnect high tension wire from spark plug if mower will be unattended.

20. Do not touch any part of the engine while it is running or shortly after it has been stopped because the engine will be hot enough to cause a burn.

safety instructions

MAINTENANCE

21. Before the mower is serviced or adjusted, move traction control into DISENGAGE detent, stop the engine and disconnect high tension wire from spark plug. Keep the wire away from the plug to prevent the possibility of accidental starting.

22. To assure the mower is in safe operating condition, keep all nuts, bolts and screws tight. Assure blade bolt is tightened to 50 ft-lb and engine mounting bolts are tightened to 16 ft-lb.

23. Perform only those maintenance instructions described in this manual. If repairs are ever needed or assistance is desired, contact an Authorized TORO Service Dealer.

24. If mower must be tipped when it is serviced or adjusted, drain gasoline from the fuel tank.

25. If a guard, safety device or safety decal is damaged, replace the defective part(s) before operating the mower.

26. To reduce potential fire hazards, assure mower is free of excessive grease, grass, leaves and accumulations of dirt.

27. The grass bag must always be in good condition; therefore, check it before each use to assure the bag is not torn or deteriorated. Replace a defective grass bag.

28. Allow engine to cool before storing mower in any enclosure such as a garage or storage shed. Do not store mower near any open flame or where gasoline fumes may be ignited by a spark.

29. Do not overspeed engine by changing governor settings. Recommended speed of the engine is 2650 rpm. To assure safety and accuracy, have an Authorized TORO Service Dealer check engine speed, 2650 rpm, with a tachometer.

30. At the time of manufacture the mower conformed to the safety standards in effect for rotary mowers. To assure optimum performance and continued safety certification of the mower, use genuine TORO replacement parts and accessories. Replacement parts and accessories made by other manufacturers may result in non-conformance with the safety standards, and that could be dangerous.

safety decals



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

ON CONTROL PANEL
(21" SP Key Model)

Starting Instructions

CAUTION. WHEEL DRIVE CONTROL MUST BE PLACED IN "DISENGAGED" POSITION BEFORE ENGINE WILL START.

MOVE THROTTLE CONTROL TO OPERATING RANGE.

TURN KEY TO "START" POSITION. RELEASE WHEN ENGINE STARTS OR AFTER THREE SECONDS OF CRANKING. IF NECESSARY TO REPEAT CRANKING, WAIT FIVE SECONDS.

TO STOP ENGINE AND BLADE, TURN KEY TO "OFF."

ON TOP OF REAR DISCHARGE
(All Models)

⚠ CAUTION
DO NOT OPERATE UNLESS BAG IS IN PLACE OR REAR DOOR IS CLOSED.



SWING DOOR BACK AND FORTH TO CLOSE.

ON CONTROL PANEL
(21" SPFT Model)

Starting Instructions

CAUTION WHEEL DRIVE CONTROL MUST BE PLACED IN "DISENGAGED" POSITION BEFORE ENGINE WILL START

MOVE THROTTLE CONTROL TO OPERATING RANGE

TURN KEY TO "START" POSITION. RELEASE WHEN ENGINE STARTS OR AFTER THREE SECONDS OF CRANKING. IF NECESSARY TO REPEAT CRANKING, WAIT FIVE SECONDS.

TO STOP ENGINE AND BLADE, TURN KEY TO "OFF."

ON CONTROL PANEL
(All Models)

⚠ WARNING
Stop Engine Before:
LEAVING OPERATOR POSITION,
EMPTYING OR ATTACHING GRASS CATCHER,
CLEARING CHUTE, ADDING GAS,
CHANGING HEIGHT OF CUT.

specifications

10 Cubic Inch Tecumseh Engine: Model TNT 100, type 10049A is used on key start model and 10048A is used on recoil start model. Four cycle, air cooled engines have output of 4.5 ft-lb of torque @ 2650 rpm. Fuel tank capacity is 1.3 quarts and crankcase capacity is 21 oz. Air cleaner is removable, servicable polyurethane type. *KEY-LECTRIC* model has auxiliary rope starter on top of engine, which is shielded by a cover, and other models have easy-pull fingertip starter.

Mower Housing: Die cast aluminum alloy housing has spiral grass chamber with rear bagging or mulching features. Width-of-cut is 21 inches.

Cutter Blade: Blade is 21 inches long and heat treated for hardness.

Blade Tip Speed: Tip speed is 14,570 ft/min @ 2650 engine rpm.

Traction Control: Control is mounted on left side of control panel. Hand operated control connects to and operates a spiral jaw clutch in gear case. Traction control has two positions: ENGAGE and DISENGAGE.

Throttle Control: Control is mounted on left side of control panel. Hand operated control connects to and operates the carburetor. *KEY-LECTRIC* model has two positions: SLOW and FAST. Recoil model has three positions: OFF, SLOW, and FAST.

Handles: Two handles are 7/8 inch diameter, 16 gauge welded steel tubing with chrome plating. Upper handle is adjustable to one of the three operating positions and it can be folded for compact storage.

Traction Drive: Front wheel drive has a special 3L section V-belt that connects the front gear box to an output shaft on the engine. Engine to gear box reduction is 0.98:1.

Gear Case: Case is die cast aluminum. Input to output reduction is 6.25:1. Lubrication requirement is 1.5 oz of SAE 90EP gear lube.

Wheels: Stamped steel wheels have two ball bearings with grease fittings for lubrication.

Front Wheel Reduction: Wheel reduction is 3:1.

Engine to Front Wheel Reduction: Reduction is 18.375:1.

Tires: Both models have 8" x 1.75" semi-pneumatic, diamond tread tires.

Ground Speed: At 2100 engine rpm, ground speed is 2.43 mph, 3.24 mph at 2500 engine rpm, and 3.44 mph at 2650 rpm.

Height-of-Cut: Height-of-cut is adjustable to one of five approximate settings: 1 inch; 1-1/2 inches; 2 inches; 2-1/2 inches; and 3 inches. A 5/8 inch setting is available on front wheels only.

Dimensions (approx):

Overall width is 21-3/4 inches.

Overall length without handle is 33-1/4 inches.

Height without handle and wheels set at 1 inch is 14 inches.

Weight: Dry weight of recoil start and electric start mowers, including bagging attachment, is approximately 74 and 80 lb respectively.

loose parts

Carefully remove mower and other parts from carton. Use chart below to assure all parts have been shipped.

PART	QTY.	WHERE USED
Lower Handle Hair Pin Cotter	1 2	Install Lower Handle, page 6.
Upper Handle Curved Head Handle Bolt Knob Self-Tapping Screw Cable Clips or Plastic Straps	1 2 2 4 2 or 3	Install Upper Handle and Control Panel, page 6.
Bag Upper Bag Frame Cap Screw Lock Nut	1 1 3 3	Assemble Bag Frame and Bag, page 6.
Battery and Charger Starter Rope Key	1 1 2	Install Battery and Connect Wires *(KEY-LECTRIC* Model), page 7.
Operator's Manual	1	Read manual before operating mower.
Registration Card	1	Fill out card and send it to The Toro Company.

set-up instructions

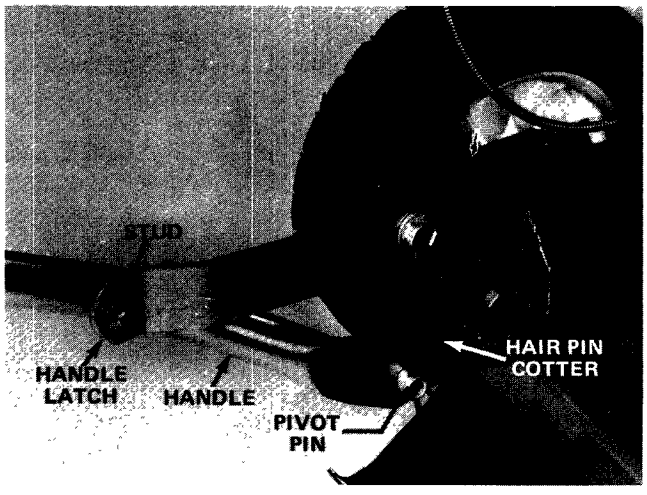
INSTALL LOWER HANDLE

Tools Required: None

1. Push ends of lower handle together and install handle on pivot pins. Slide hair pin cotters through both pivot pins (Fig. 1).

2. Move handle latches backward until handle studs fit into hole at end of latches (Fig. 1).

Note: If latches do not stay engaged with handle studs, bend latches outward until engagement is maintained.



Installing Lower Handle
Figure 1

INSTALL UPPER HANDLE AND CONTROL PANEL

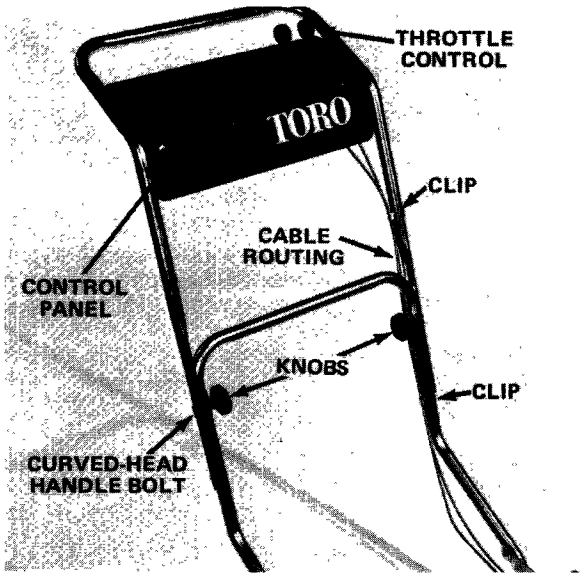
Tools Required: Screwdriver

1. The upper handle can be set at different heights for optimum operator comfort. To attach upper handle to lower handle, line up holes in both handles and secure them together with two curved-head handle bolts and knobs (Fig. 2). The knobs must be installed on inside of the handles.

2. Route control panel and cables between and behind lower handle (Fig. 2). Secure control panel against back of upper handle with self-tapping screws.

3. Install cable clips around control cables and handles (Fig. 2). However, plastic straps are used to secure control cables and wiring harness to handles on the *KEY-LECTRIC* model.

Note: Secure control cables and wiring harness against outside top of handle latch to prevent any interference with the bag.



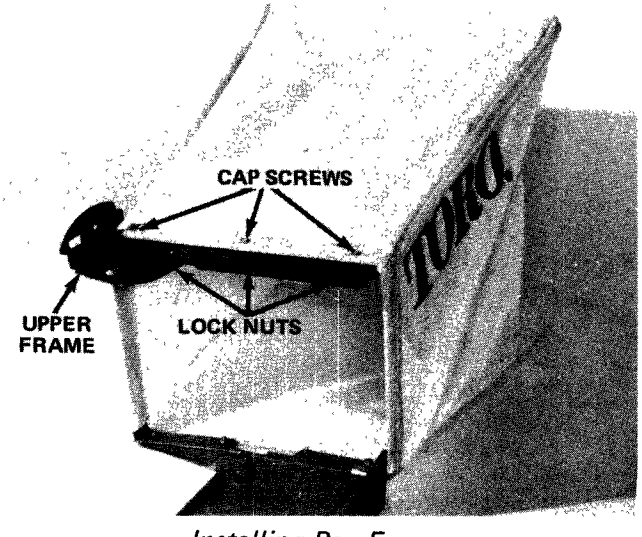
Installing Control Panel and Cables
Figure 2

ASSEMBLE BAG FRAME AND BAG

Tools Required: 3/8-Inch and 5/16-Inch Wrenches

1. Lay the bag down so hard bottom contacts the floor.

2. Open door of bag. Slide upper frame into bag and secure upper frame against inside of front frame with three cap screws and lock nuts (Fig. 3).



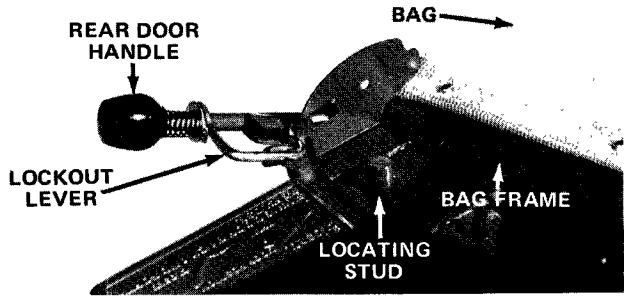
Installing Bag Frame
Figure 3

Note: When installing the cap screws and lock nuts, tighten the nuts, not the cap screws. Tightening the cap screws will twist the bag and possibly cause it to tear.

3. Close door of bag. Top and side of door must fit outside the frame.

set-up instructions

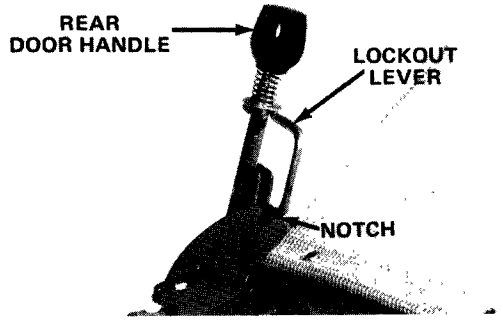
4. Assure rear door handle is fully forward and locked in place (Fig. 4).



Rear Door Handle Locked Forward
Figure 4

5. Slide guide hole in upper bag frame onto locating stud on mower housing (Fig. 4); then set rear of bag frame onto lower handle.

6. Squeeze lockout lever until it disengages the bag catch (Fig. 4). Then move handle backward until lockout lever locks in notch at rear of latch (Fig. 5). The rear door in mower housing is open now.



Rear Door Handle Locked in Rear Notch
Figure 5

INSTALL BATTERY AND CONNECT WIRES (*KEY-LECTRIC* MODEL)

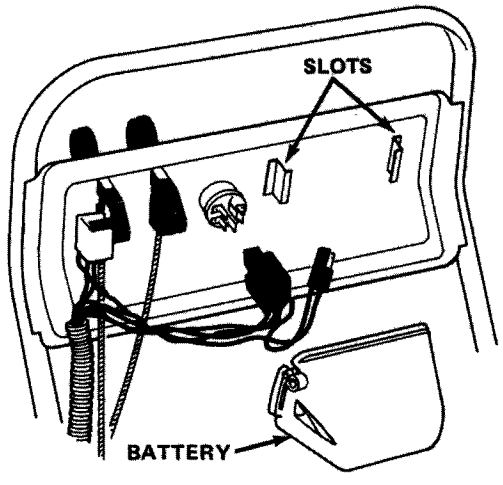
Tools Required: None

1. Charge the battery: refer to Charging Battery, page 21.

2. Hold battery so connector terminal is to the left. Slide battery between mounting slots on back of control panel (Fig. 6).

3. Push ignition connector onto ignition switch and wiring harness connector onto battery terminals (Fig. 6).

Note: Key for ignition switch is in loose parts bag. Do not insert key into switch until engine is ready to be started.



Installing Battery and Connectors
Figure 6

before operating

FILL CRANKCASE WITH OIL

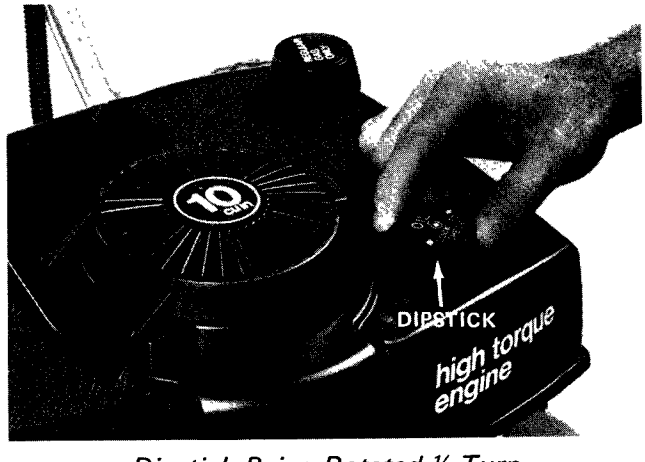
Tools Required: Funnel and Clean Rag

The engine does not have oil in the crankcase when it is shipped from the factory. If engine is started before oil is added to the crankcase, engine damage could result. Therefore, before engine is started for the first time:

1. Position mower on level surface.

2. Clean area around the oil dipstick to prevent foreign matter from entering the filler hole when dipstick is removed.

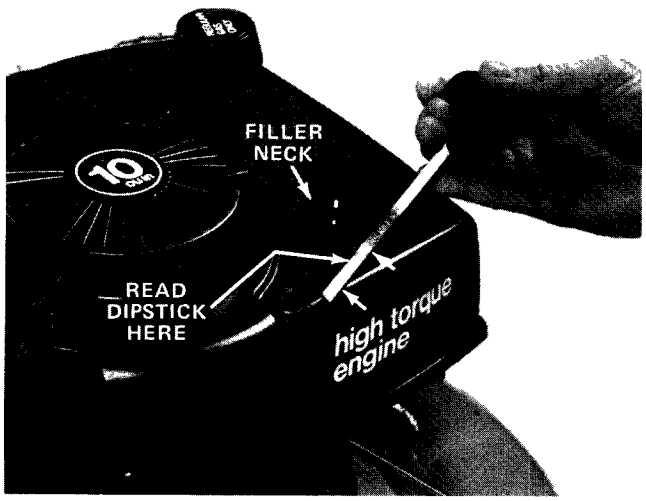
3. Remove dipstick by rotating cap counterclockwise 1/4 turn (Fig. 7).



Dipstick Being Rotated ¼ Turn
Figure 7

4. Slowly pour approximately 21 ounces of oil into the filler neck. The engine uses any high quality detergent oil having the American Petroleum Institute – API – "service classification" MS, SC, SD or SE. The recommended oil to use is: SAE 10W-30 or 10W-40.

5. Wipe end of dipstick and insert it into filler neck. Rotate cap clockwise 1/4 turn. Then remove the dipstick and check level of oil by reading the dipstick (Fig. 8). If level of oil is low, add only enough oil to raise level to FULL mark on dipstick. DO NOT ADD OIL SO LEVEL RISES ABOVE FULL MARK BECAUSE ENGINE COULD BE DAMAGED WHEN IT IS STARTED.



Reading Oil Level on Dipstick
Figure 8

6. Insert dipstick into filler neck and rotate cap clockwise 1/4 turn.

Note: Check level of oil after every 5 operating hours or each time the mower is used. Initially, change oil after the first 2 hours of operation; thereafter, when conditions are normal, change oil after every 25 hours of operation. However, change oil more frequently when mower is operated in dusty or dirty conditions.

FILL FUEL TANK WITH GASOLINE

Tools Required: Funnel and Clean Rag

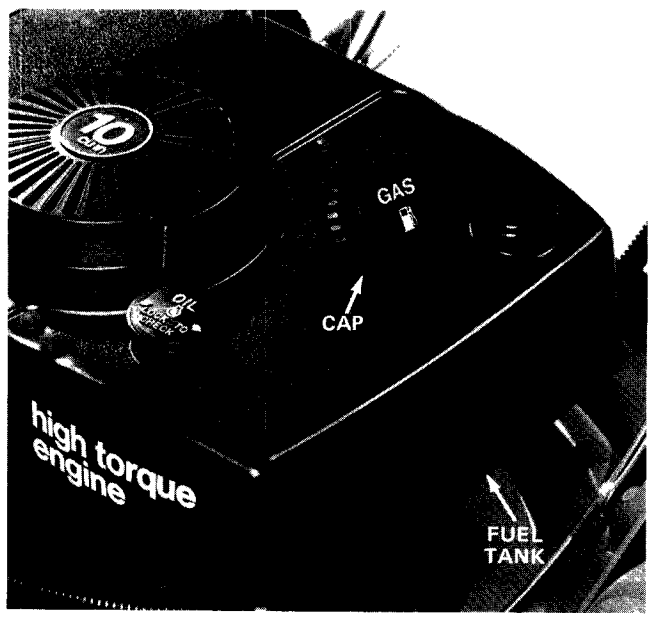
1. Clean area around fuel tank cap and remove cap from tank (Fig. 9).

2. Fill fuel tank to within 1/2 inch from top of the tank with unleaded gasoline. Install fuel tank cap securely.

Note: If unleaded gasoline is not available, leaded-regular gasoline can be used.

3. Wipe up spilled gasoline.

IMPORTANT: Unleaded gasoline is recommended. Do not mix any oil with the gasoline, and never use premium gasoline, gasoline additives or white gas because engine damage could result.



Fuel Tank Cap Removed
Figure 9

CAUTION

Gasoline is a highly flammable fuel for internal combustion engines, and it is not recommended for any other use. Always handle it carefully. Since many children like the smell of gasoline, keep it out of their reach because the fumes are explosive and dangerous to inhale.

To assure volatility, buy a 30 day supply of gasoline and store the gasoline in a cool, well-ventilated place; never in the house or basement. Always use a clean, approved gasoline container, and keep the cap tight to prevent the escape of fumes from the container.

Fill fuel tank outside, use a funnel or spout to prevent spilling, and wipe up any gasoline that does happen to spill. Fill fuel tank only while engine is cool and not running. Fill the tank to about 1/2 inch from the top so there is room for expansion of the gasoline. While filling the fuel tank, stay away from open flame and electrical spark, and do not smoke.

controls

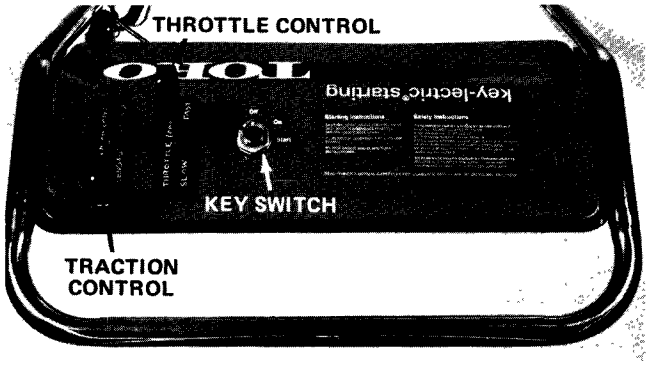
Throttle Control – The *KEY-LECTRIC* model throttle control (Fig. 11) has two positions: SLOW and FAST. Move control between SLOW and FAST to operate engine at various speeds. Engine cannot be shut off by moving throttle control to SLOW: the ignition key must be turned OFF. By comparison, the recoil model throttle control (Fig. 10) has three positions: OFF, SLOW, and FAST. Move control between SLOW and FAST to operate engine at various speeds. To stop engine, move throttle control to OFF.



Recoil Start Controls
Figure 10

Traction Control (Figs. 10 or 11) – Traction control has two positions: ENGAGE and DISENGAGE. Move control to the left and forward to engage the front wheel self-propelled drive. Pull control backward into detent position to disengage the self-propelled drive. The detent holds traction control in DISENGAGE position. Tracton control must be in DISENGAGE detent before engine can be started.

Key Switch (Fig. 11) – The key switch on *KEY-LECTRIC* model is used to start and stop the engine. Rotate key to START position and release key immediately when engine begins to run. When released, key will move automatically to the ON position. DO NOT TURN KEY TO START POSITION WHILE ENGINE IS RUNNING because mechanical damage will likely result. Rotate key to OFF position to stop engine.



KEY-LECTRIC Start Controls
Figure 11

Recoil Starter (Fig. 12) – Pull fingertip starter to start recoil-equipped engine.



Recoil Starter
Figure 12

Height-of-Cut Adjusters (Fig. 13) – Height-of-cut is adjustable to one of five approximate settings: 1 inch, 1-1/2 inches, 2 inches, 2-1/2 inches, or 3 inches. In addition, front wheels have a 5/8 inch setting that can be used with the 1 inch rear wheel setting. When cutting thatch or heavy, thick grass, raise rear wheel one setting above the front wheel setting to assure optimum power to the blade.



Height-of-Cut Adjuster
Figure 13

operating instructions

ADJUST HEIGHT-OF-CUT

The height-of-cut is adjustable from approximately 1 to 3 inches, in 1/2 inch increments, and letters cast into the housing represent each graduated increment.

a = 1 Inches
b = 1-1/2 Inches
c = 2 Inches
d = 2-1/2 Inches
e = 3 Inches

1. ⚠ Assure engine is not running before adjusting the height-of-cut because contact with the rotating blade will cause personal injury.

2. Place thumb against height-of-cut adjuster and fingers on outside of wheel (Fig. 13).

3. Raise mower housing until wheel is off the ground. Squeeze height-of-cut adjuster toward wheel so its locating pin disengages notch in mower housing. Then pivot the wheel and adjuster to the desired height-of-cut and release adjuster so locating pin engages notch in housing.

OPERATING CHARACTERISTICS AND TIPS

The GRASSMASTER has a 10 cubic inch, high torque engine that runs at low rpm, yet delivers the blade turning force necessary to produce a good quality-of-cut. The reduced engine speed should result in less engine wear, less noise when compared with other rotary mowers, and better gasoline economy.

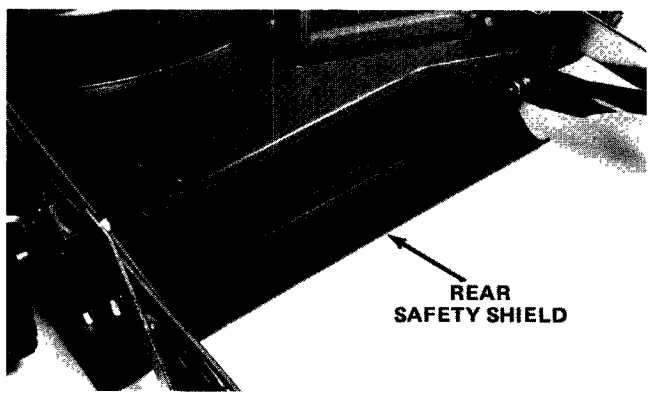
The mower can be used to bag or mulch the grass: refer to bagging, page 10 and mulching, page 12. Bagging can be accomplished by opening the rear door in the mower housing and mulching by closing the door.

To use the mower for bagging grass, install the bag, open the rear door in mower housing and start the engine. Notice that the grass bag expands at the sides and top. This expansion by the bag is caused by the air currents, generated by the blade, flowing through the bag. As grass is cut and discharged into the 2-1/4 bushel bag, the air currents through the bag decrease gradually as it is being filled. While the bag is expanded, grass can be cut. But stop the engine and empty the bag when it is no longer expanded.

The GRASSMASTER has front wheel self-propelled drive, providing greater maneuverability than rear drive mowers. To change direction while the front wheel drive is engaged, push down on the handle so the front wheels raise off the turf slightly: there is no need to disengage the front wheel drive.

Because of its unique weight distribution, the front drive is easily controlled. By exerting slight upward pressure on the handle, the mower will propel itself across most turf terrain. If the front wheels lose traction when slopes are mowed, push up on the handle with somewhat more force, until the front wheels regain traction.

Since the mower is equipped with a rear safety shield (Fig. 14), feet are protected from objects that might be thrown rearward and from possible contact with the blade. Because of its flexible design, maneuverability of the mower is unaffected. Never remove the rear shield because it is a safety device, designed for your protection. If the shield is ever damaged, replace it before operating the mower.



Rear Safety Shield Mounted for Safety
Figure 14

After the mower is used, it must be cleaned and maintained so it is ready for the next cutting. Use the wash-out port to clean the underside of the mower housing. However, avoid getting water directly onto the engine or electrical connections because damage could result. Charge the battery as specified in maintenance section of this manual, if mower has an electric starter. Periodically, check the air cleaner and blade, and assure the blade bolt is tightened to 50 ft-lb. The oil in the crankcase must be changed after the first 2 hours of operation and after every 25 hours thereafter. Assure level of oil is always in the SAFE range, as shown on the dipstick; however, never fill oil over the FULL mark because engine damage could result.

Whenever the mower is being operated, adjusted or maintained, the safety instructions at the front of this manual must be kept in mind. Safe operation is your responsibility.

BAGGING

The GRASSMASTER discharges grass clippings into a large, 2-1/4 bushel bag, and because of the rear bagging feature, both sides of the mower can

be used for trimming. Bagging is most effective when engine is running at maximum speed and only about 1/3 of grass blade is being cut. If an excessive amount of grass is being cut off, the mower can plug and cause the engine to stall. If long grass must be cut, adjust mower to the highest height-of-cut; then cut the grass. Follow this by lowering the height-of-cut and cutting the grass again.

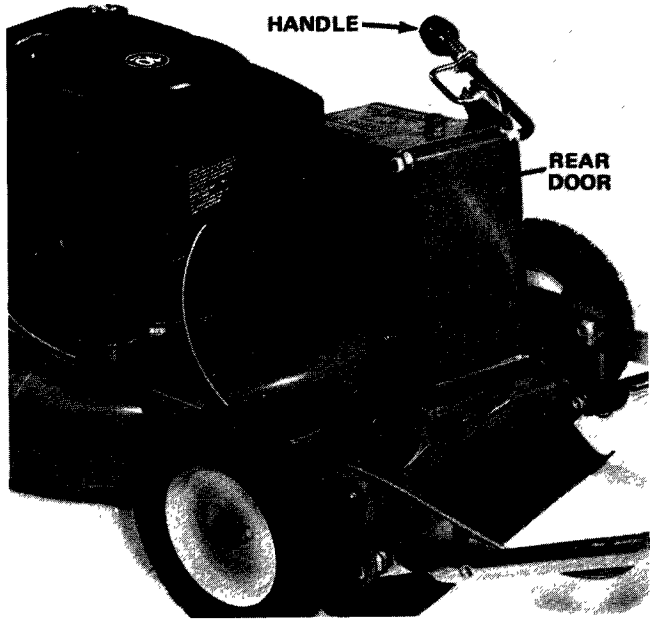
⚠ WARNING

The grass bag material will contain and catch the majority of foreign objects, such as small stones and other similar debris. The bag material, however, is subject to normal wear and deterioration. So check the bag frequently, and if it is defective, install a new, genuine TORO replacement bag that has this warning or a similar one.

To bag grass with the mower:

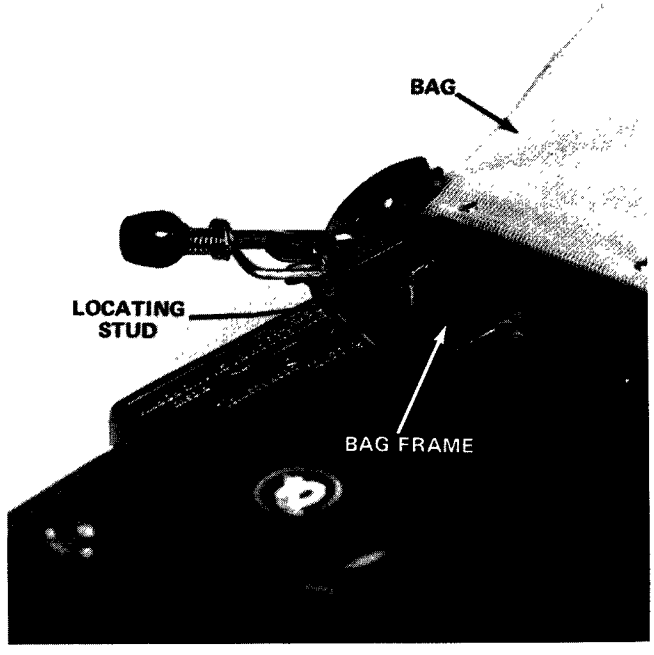
1. ⚠Move traction control into DISENGAGE detent, stop the engine and wait for all moving parts to stop.

2. Assure rear door handle is fully forward and lockout lever is released into safety catch (Fig. 15). The rear door of mower housing is closed now.



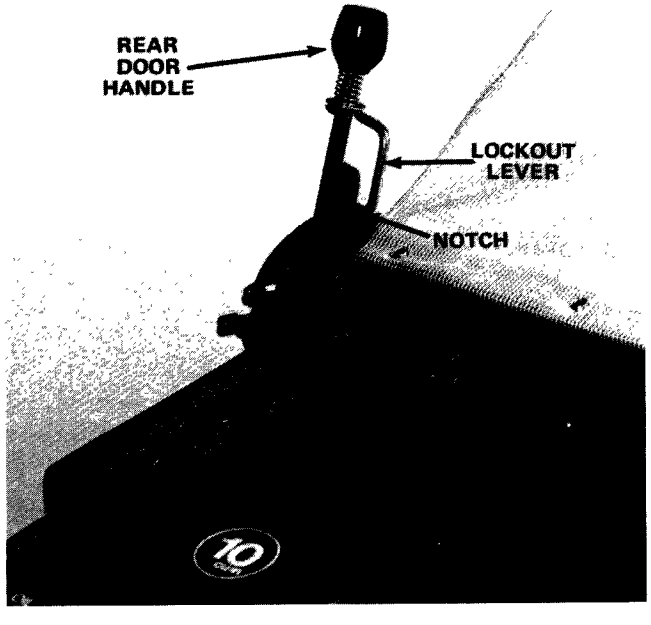
Handle Forward and Door Closed
Figure 15

3. Close the grass bag door. Slide guide hole in upper bag frame onto locating stud on mower housing (Fig. 16); then set rear of bag frame onto lower handle (Fig. 18).



Grass Bag Mounted on Housing
Figure 16

4. Squeeze lockout lever until it disengages the bag catch. Then move handle backward until it locks in notch at rear of bag latch (Fig. 17). The rear door in mower housing is now open and mower is ready to bag grass.



Handle Locked in Rear Notch – Door Open
Figure 17

operating instructions

5. ⚠ When bag must be emptied, move traction control into DISENGAGE detent, stop the engine and wait for all moving parts to stop. Move rear door handle forward until it locks in the safety catch. Then lift bag straight up so clippings stay in the bag rather than falling out the opening (Fig. 18).



Removing Grass Bag
Figure 18



Dumping Grass Out of Bag
Figure 19

IMPORTANT: If rear door of mower cannot be closed because grass clippings clog the discharge area, move rear door gently, back and forth. Do this until clippings are pushed into the bag and rear door can be closed completely. DO NOT FORCE THE REAR DOOR CLOSED because door or handle could be damaged.

⚠ CAUTION

Never open the rear door when grass bag is removed from the mower and engine is running. Grass clippings and other debris will be discharged with enough force to cause personal injury.

6. To dump grass out of bag, open door at front of bag. While shaking the bag, gradually tip it forward so grass sifts out (Fig. 19). Do not try to dump all the grass at once.

7. Reinstall bag by repeating steps 3 and 4.

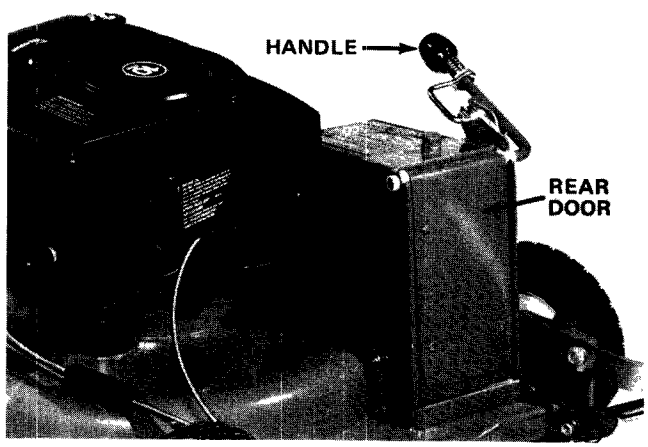
MULCHING

The GRASSMASTER can be used for mulching dry grass. However, mulching is effective when only about 1/4 of the grass blade is cut. During the mulching process, the blade slices the cut pieces of grass again and again, so very fine particles of grass are deposited on the lawn. These fine grass clippings eventually decompose.

To mulch grass with the mower:

1. ⚠ Move traction control into DISENGAGE detent, stop the engine and wait for all moving parts to stop.

2. Squeeze lockout lever, move rear door handle fully forward and release lever into safety catch (Fig. 20). The rear door of mower housing is closed now and mower is ready for mulching.



operating instructions

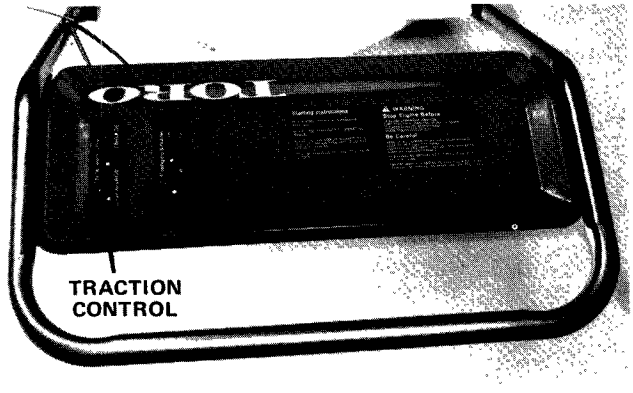
Note: If desired, the grass bag may remain on the mower when mulching.

> **CAUTION**
>
> Never open rear door when mulching because grass clippings and other debris will be discharged with enough force to cause personal injury.

STARTING/STOPPING THE ENGINE

1. Assure high tension wire is pushed onto spark plug.

2. Move throttle control forward to FAST position and traction control into DISENGAGE detent (Fig. 21).

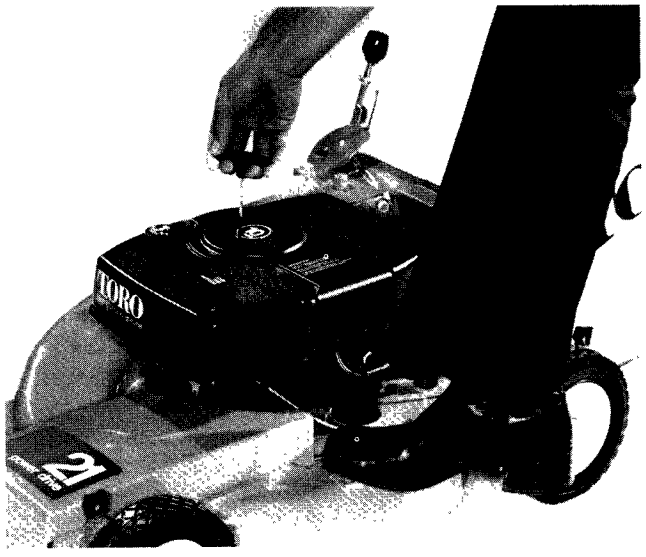


Recoil Start Throttle and Traction Controls
Figure 21

3. Proceed to step 4 if mower has recoil starter or step 5 if mower has an electric starter.

4. Place foot on step at left side of mower housing (Fig. 22) and keep other foot from beneath the housing. Pull fingertip starter handle up until positive engagement results, and pull handle quickly to start the engine. Regulate throttle as desired. Since the carburetor has a prime well that supplies an extra-rich charge of gasoline for starting the engine, wait about 10 seconds after pulling the starter handle two or three times. If 10 seconds does not elapse between attempted starts, the prime well will not refill and the engine may not start. Also, do not pull starter rope to its limit or let go of the handle when rope is pulled out because starter mechanism or rope may break.

5. Insert key into the key switch until it snaps in place (Fig. 23). Rotate key to START position to start the engine. Release key immediately when engine starts running and regulate the throttle as

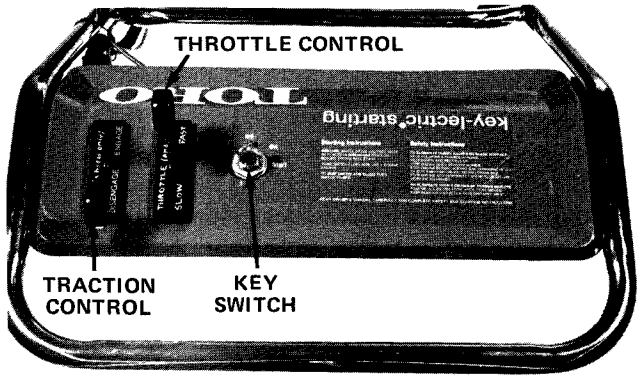


Pulling Recoil Starter
Figure 22

desired. The carburetor has a prime well that supplies an extra rich charge of gasoline for starting the engine. If engine does not start after 3 seconds of continuous cranking by the electric starter, wait about 10 seconds to allow prime well to refill. Repeat this procedure until engine starts. Failure to wait 10 seconds may cause starting problems. If engine does not start, although 10 seconds elapses between each starting attempt, check electrical connections for proper contact. Make sure the battery is fully charged.

Note: If the battery — because of low charge — does not have enough output to activate the electric starter and start the engine, check electrical connections for proper contact. Then start engine using auxiliary recoil starter: refer to Auxiliary Starting Method, page 14.

6. To stop recoil equipped engine, move throttle control to OFF position (Fig. 21). To stop engine equipped with an electric starter, rotate key to OFF position (Fig. 23).



KEY-LECTRIC Traction Control, Throttle and Ignition
Figure 23

7. Pull high tension wire off spark plug to prevent possibility of accidental starting when mower is unattended or not used.

AUXILIARY STARTING METHOD (KEY START MODEL)

If battery – because of low charge – does not have enough power to activate the starter and start the engine, check electrical connections for proper contact. The engine can be started, however, although battery is not charged, by using the auxiliary starting pulley.

1. Assure high tension wire is pushed onto spark plug.

2. Move traction control into DISENGAGE detent, throttle control TO FAST position and rotate ignition key to START.

3. Push against back of hinged cover while lifting up on front of cover (Fig. 24) to gain access to the auxiliary starting pulley on top of engine.



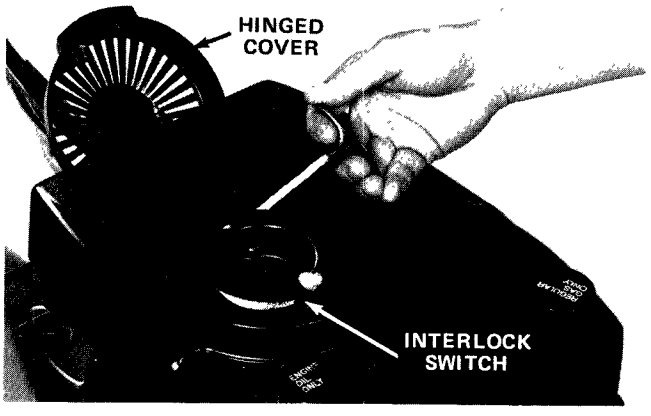
Opening Hinged Cover to Expose Pulley
Figure 24

4. Insert knot at end of starter rope into slot in auxiliary starting pulley and wind rope clockwise around the pulley (Fig. 25).

5. Place foot on step at left side of mower housing and keep other foot from beneath the housing. Pull starter rope out slowly until positive engagement results, and pull handle quickly to start the engine.

6. After engine starts, CLOSE HINGED COVER TIGHTLY TO "OPEN" INTERLOCK SWITCH (Fig. 25).

IMPORTANT: If hinged cover is not closed tightly, engine will shut off when traction control is moved to ENGAGE position.



Rope Wound Around Pulley
Figure 25

7. To stop engine rotate key to OFF position.

8. Pull high tension wire off spark plug to prevent possibility of accidental starting when mower is unattended or not used.

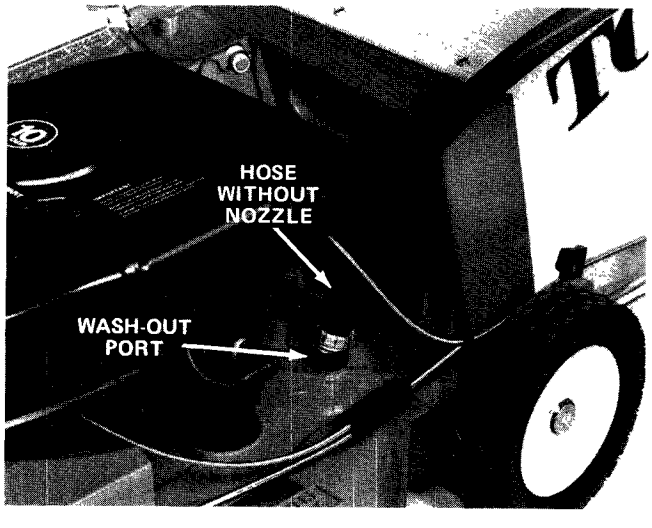
USING WASH-OUT PORT

After mower is used, underside of mower housing must be cleaned to prevent grass clippings from adhering to the housing. To clean underside of mower housing, use the wash-out port.

1. ⚠ Move traction control into DISENGAGE detent. Stop the engine and wait for all moving parts to stop. Close rear door to prevent discharge of water when wash-out port is used.

2. Set height-of-cut in the "a" position and open the wash-out port.

3. Start the engine. Insert end of hose, without nozzle, into wash-out port opening (Fig. 26). Using



Hose in Wash-Out Port
Figure 26

operating instructions

moderate water pressure, allow water and engine to run for approximately two minutes. However, do not spray water onto the starter motor on electric start model because damage could result. The action created by the rotating blade and water flushes accumulations of grass clippings from underside of mower housing. When grass is no longer discharged and color of discharged water is clear again, stop the engine. Pull high tension wire off spark plug after all parts stop moving.

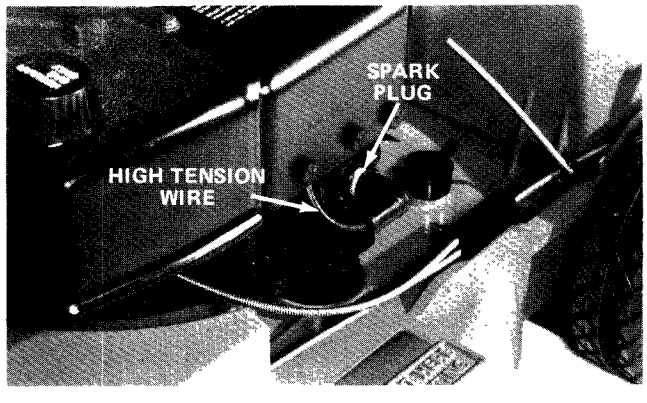
Note: Dry bulky accumulations of grass clippings must be cleaned with a scraper: refer to Cleaning Mower Housing, page 19.

4. Wipe the mower with a clean rag to remove excess water.

maintenance

CAUTION

To reduce potential accidents, never perform an adjustment or maintenance procedure while the engine is running. Pull high tension wire (Fig. 27) off spark plug to prevent an accidental start.



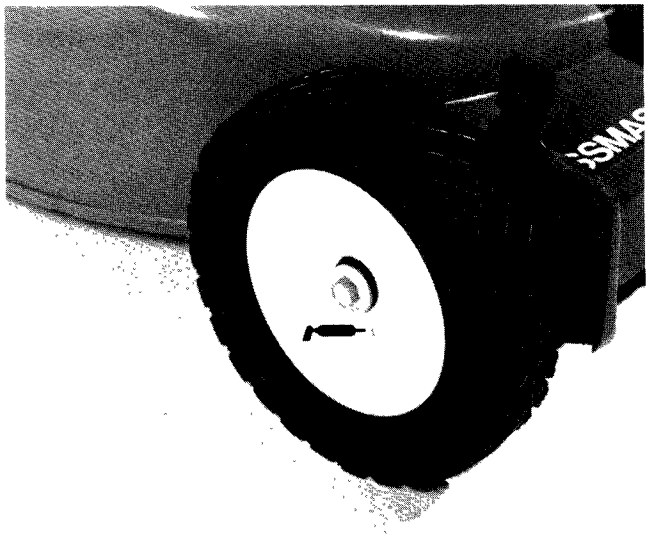
High Tension Wire and Spark Plug
Figure 27

LUBRICATION

Tools Required: Clean Rag and Grease Gun w/no. 2 General Purpose Grease

1. After every 25 hours of operation or at the end of the mowing season, lubricate wheel bearings with no. 2 general purpose grease (Fig. 28). Lubricate the wheel bearings more often when operating conditions are extremely dusty and dirty. Wipe up any excess grease.

2. The throttle and traction control cables must be lubricated after every 25 hours of operation or at the end of the mowing season, whichever comes first. Apply light oil onto the cables (Fig. 29), especially where they bend and where traction cable enters junction box. Also, squirt oil onto the cables where they enter the control housings. Operate the controls to distribute the oil. Wipe up excess oil.



Lubricating Wheels
Figure 28



Lubricating Control and Cable
Figure 29

maintenance

SERVICING AIR CLEANER

Tools Required: Solution of Liquid Soap Detergent and Water, Clean Rag and Engine Oil

The air cleaner element must be cleaned after every 25 hours of engine operation if the engine is operated in clean air conditions. The element must be cleaned more frequently, however, when mower is operated in dusty or dirty conditions.

1. ⚠ Assure engine is not running, traction control is in DISENGAGE detent and high tension wire is pulled off spark plug.

2. Place fingers under right side of cover and lift it up (Fig. 30). Clean inside and outside of cover if it is dirty.



Removing Air Cleaner Cover
Figure 30

3. Look at top of air cleaner element (Fig. 31). If it is dirty, the element must be removed from air cleaner body (Fig. 31) and cleaned.

A. WASH element in a solution of liquid soap and warm water. Squeeze the element to remove dirt. Do not twist element because it may tear.

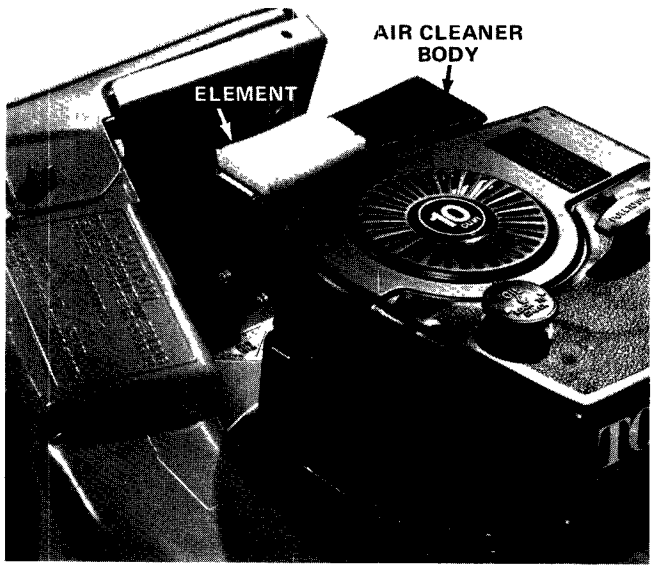
B. DRY the element by wrapping it in a clean rag. Squeeze the rag and element until element is dry.

C. SATURATE element with engine oil. Squeeze element to remove excess oil and to distribute the oil thoroughly. A damp element is desirable.

D. Place element into the air cleaner body (Fig. 31).

4. Install cover on air cleaner body. Assure cover snaps in place and is seated securely on air cleaner body.

IMPORTANT: Do not operate engine without air cleaner element because extreme engine wear and damage will likely result.



Element Air Cleaner Body
Figure 31

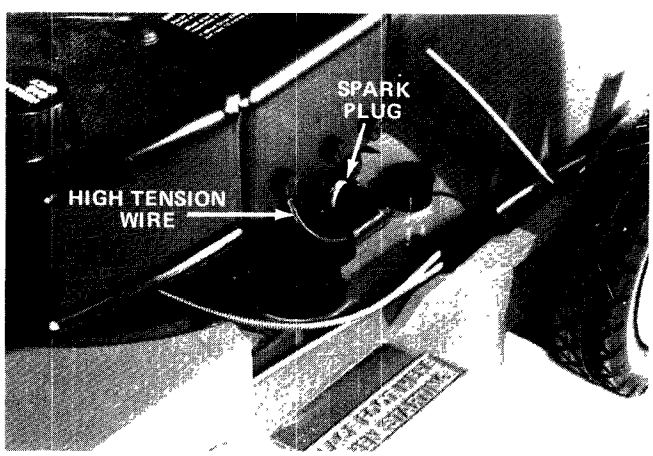
REPLACING SPARK PLUG

Tools Required: 3/4-Inch Spark Plug Socket, Spark Plug Gapping Tool and Clean Rag

Recommended spark plug to use is a Champion CJ-8 or equivalent, and correct air gap is 0.030 of an inch. Since air gap between center and side electrodes of the spark plug increases gradually during normal engine operation, remove plug after every 25 hours of engine operation and check its condition.

1. ⚠ Assure engine is not running and traction control is in DISENGAGE detent. Pull high tension wire off spark plug.

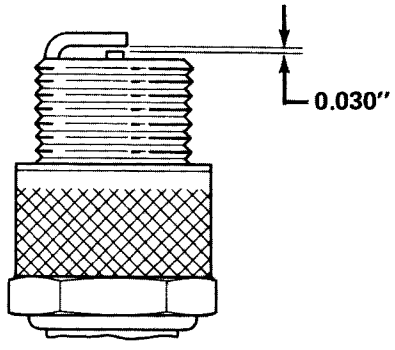
2. Clean area around spark plug so foreign matter does not fall into cylinder when plug is removed. Remove plug from cylinder head (Fig. 32).



High Tension Wire and Spark Plug
Figure 32

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

3. Set air gap between electrodes at 0.030 of an inch (Fig. 33). Install the correctly gapped spark plug with gasket seal and tighten plug to 15 ft-lb. If torque wrench is not used, tighten plug firmly.



Air Gap Between Electrodes
Figure 33

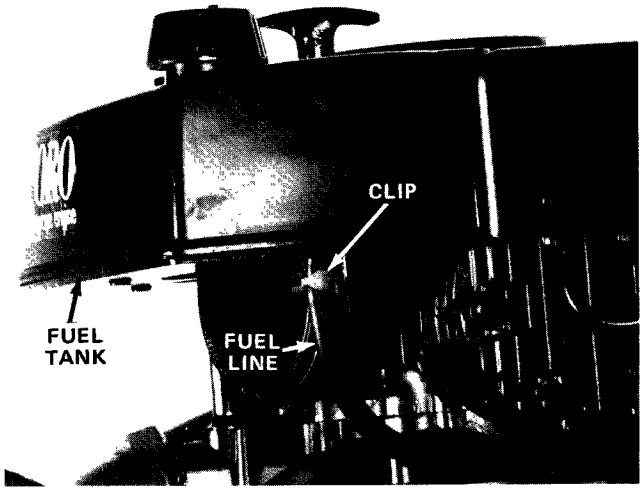
DRAINING GASOLINE

Tools Required: Pliers, Shallow Drain Pan and Clean Rag

1. ⚠ Assure engine is not running, traction control is in DISENGAGE detent and high tension wire is pulled off spark plug.

2. Place a clean, shallow drain pan below the fuel tank (Fig. 34).

3. Squeeze ends of clip holding fuel line on fuel tank fitting (Fig. 34). Slide clip down fuel line.



Removing Fuel Line from Fuel Tank
Figure 34

4. Carefully pull fuel line off fitting to allow gasoline to flow into drain pan.

5. After gasoline is drained, install fuel line on fuel tank fitting and secure it in place with the clip.

CHANGING CRANKCASE OIL

Tools Required: Clean Rag, Shallow Oil Drain Pan and Small Funnel

Change oil after the first 2 hours of engine operation and after every 25 hours thereafter. Since warm oil drains better and carries more contaminants than cold oil, run the engine for a minute or so before changing oil.

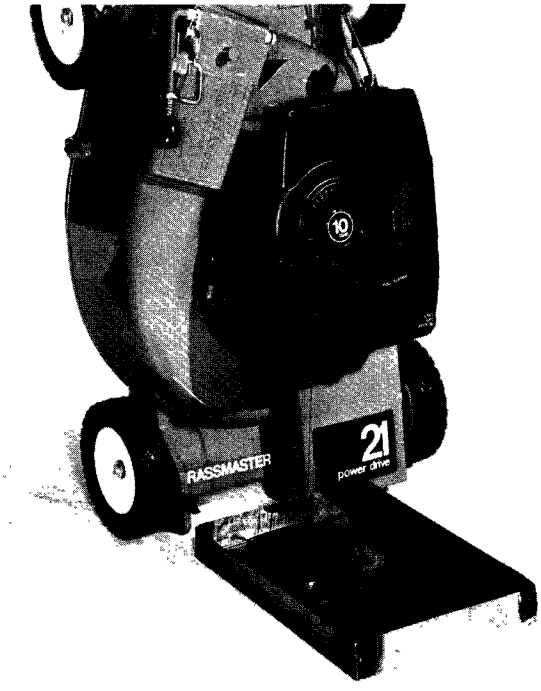
1. ⚠ Assure engine is not running, traction control is in DISENGAGE detent and high tension wire is pulled off spark plug. Also remove grass bag.

2. ⚠ Drain gasoline from fuel tank to prevent a potential hazard.

3. Clean area around dipstick and remove the dipstick from the filler neck.

4. Tip mower forward so all oil drains out filler neck and into drain pan (Fig. 35).

5. Position the mower on a level surface and fill the crankcase with oil to FULL mark on dipstick: refer to Fill Crankcase With Oil, page 7.



Draining Oil out Filler Neck
Figure 35

maintenance

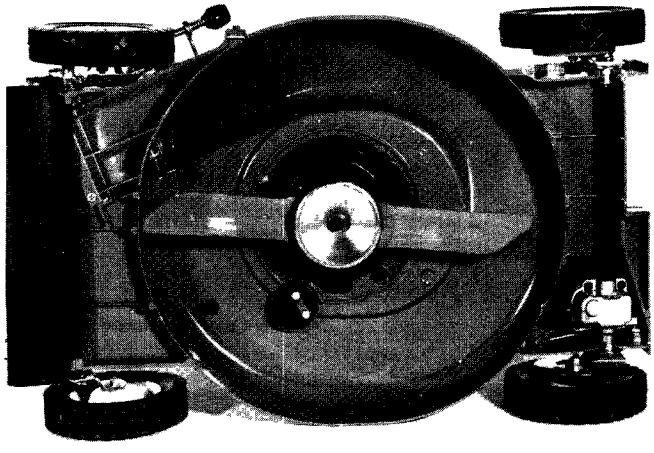
INSPECTING CUTTER BLADE FOR DAMAGE

Tools Required: None

1. ⚠Assure engine is not running, traction control is in DISENGAGE detent and high tension wire is pulled off spark plug.

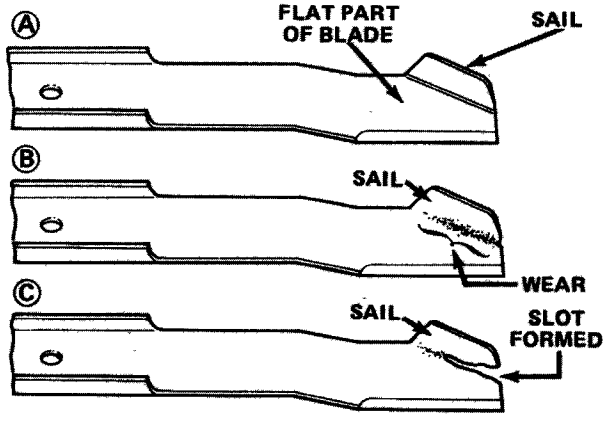
2. ⚠Drain gasoline from fuel tank: refer to Draining Gasoline, page 17.

3. Tip mower on its left side (Fig. 36), which is its spark plug side, and allow it to remain tipped for a short time. Avoid rotating the blade when mower is tipped because starting problems may result.



Mower on Left Side
Figure 36

4. Examine cutting ends of the blade carefully, especially where the flat and curved parts of the blade meet (Fig. 37A). 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 any wear is noticed (Fig. 37B), replace the blade: refer to Sharpening or Replacing Cutter Blade, page 18.



Examining Blade for Wear
Figure 37

> ⚠ CAUTION
>
> If the blade is allowed to wear, a slot will form betwen the sail and flat part of the blade (Fig. 37C). 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.

5. Set mower upright.

SHARPENING OR REPLACING CUTTER BLADE

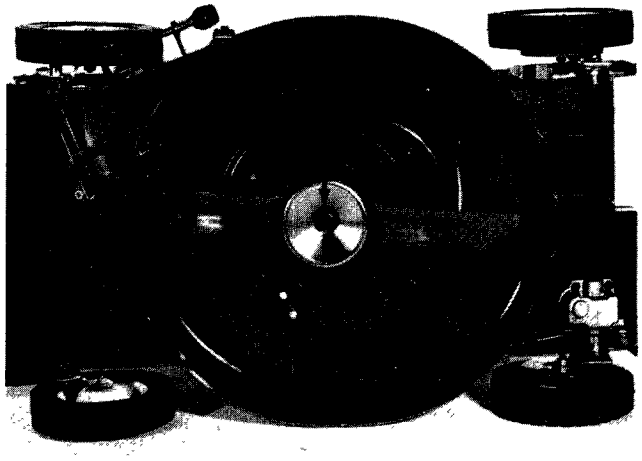
Tools Required: Clean Rag, File and 5/8-Inch Socket or Wrench.

1. ⚠Assure engine is not running, traction control is in DISENGAGE detent and high tension wire is pulled off spark plug.

2. ⚠Drain gasoline from fuel tank: refer to Draining Gasoline, page 17.

3. Tip mower on its left side, which is its spark plug side, and allow it to remain tipped for a short time. Avoid rotating the blade when mower is tipped because starting problems may result.

4. Grasp end of the blade using a rag or thickly padded glove. Remove cap screw, lock washer, anti-scalp cup and blade (Fig. 38).

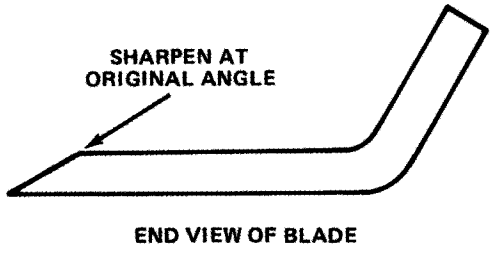


Removing Cutter Blade
Figure 38

Note: To assure optimum cutting performance, install a new blade at the start of the cutting season. During the year, file down small nicks to maintain a fine cutting edge.

5. Using a file, sharpen cutting edge at both ends of the blade (Fig. 39).

IMPORTANT: Sharpen top side of blade and maintain original cutting angle to assure a sharp cutting edge (Fig. 39). The blade will remain balanced if same amount of material is removed from both cutting edges.



Sharpening Cutter Blade
Figure 39

6. Check balance of blade by putting it on a blade balancer. 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 some metal off heavy "end" of the blade, not off the cutting edge. Then check the blade balance again.

Note: An inexpensive blade balancer can be purchased at a hardware store.

7. Install sharp, balanced blade and the anti-scalp cup with lock washer and cap screw. Sail part of the blade must point toward the mower housing to assure correct installation. Tighten cap screw to 50 ft-lb.

8. Set mower upright.

CLEANING MOWER HOUSING

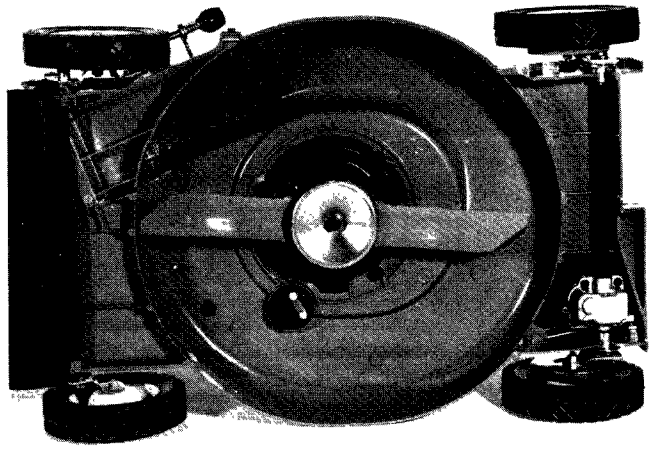
Tools Required: Wooden Scraper

To assure a good cut and efficient grass bagging, underside of mower housing and inside of discharge area must be kept clean.

1. ⚠ Assure engine is not running, traction control is in DISENGAGE detent and high tension wire is pulled off the spark plug.

2. ⚠ Drain gasoline from fuel tank: refer to Draining Gasoline, page 17.

3. Tip mower on its left side (Fig. 40), which is the spark plug side, and allow it to remain tipped for only a short time. Avoid rotating the blade when mower is tipped because starting problems may result.



Mower on Left Side
Figure 40

4. Remove grass clippings and dirt that sticks to the housing by spraying it with a garden hose. Scrape out any grass that water does not remove from housing.

5. Set mower upright.

ADJUSTING THROTTLE CONTROL

Tools Required: Screwdriver

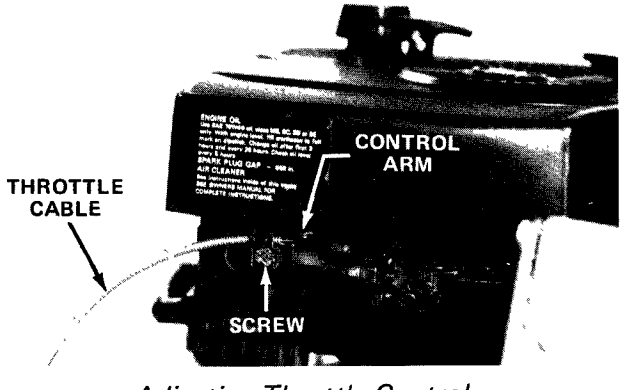
An adjustment of the throttle control may be required if the engine does not start or stop. Whenever a new throttle control cable assembly is installed, the throttle must be adjusted.

1. ⚠ Assure engine is not running, traction control is in DISENGAGE detent and high tension wire is pulled off the spark plug.

2. Close door in mower housing and remove bag.

3. Move the throttle control lever to the STOP position.

4. Loosen cable clamp screw until throttle cable is free to slide (Fig. 41).



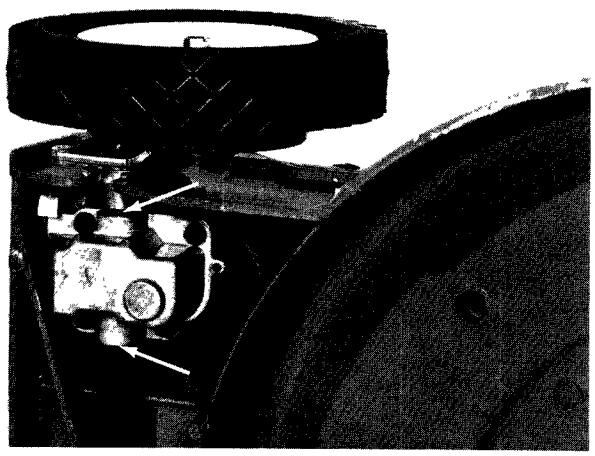
Adjusting Throttle Control
Figure 41

5. Move carburetor control arm to the left until it contacts grounding bracket (Fig. 41). Pull throttle cable slightly to remove any slack and tighten the cable clamp screw to lock the adjustment in place.

CHECKING GEAR CASE

Tools Required: None

The gear case is filled with oil and sealed at the factory; therefore, regular maintenance is not necessary. However, check gear case periodically for oil leaks between sides of case and axle (Fig. 42). If oil leak is excessive or continuous, have mower inspected by an Authorized TORO Service Dealer.



Underside of Gear Case
Figure 42

ADJUSTING TRACTION CONTROL

Tools Required: 9/16 Inch Socket and Screwdriver

If traction control does not engage or disengage the front wheels, an adjustment may be required.

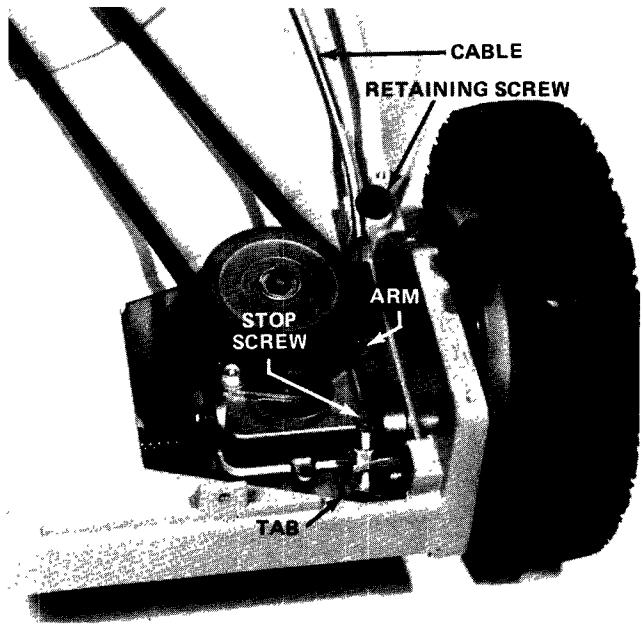
1. ⚠ Assure engine is not running and high tension wire is pulled off spark plug.

2. Remove three screws holding POW-R-DRIVE cover and put cover aside.

Note: Check the stop screw (Fig. 43) to be sure it contacts tab at front of gear case. If contact is not evident, loosen jam nut and adjust the stop screw. The screw prevents the gear case from moving.

3. Loosen cable retaining screw until control cable is free to slide (Fig. 43).

4. Move the traction control backward into the DISENGAGE detent.



Front Drive Control
Figure 43

5. Push shifter arm backward until it stops and hold shifter in place. Pull control cable and wire backward to remove all slack, and secure cable in place by tightening the cable retaining screw (Fig. 43). Install cover with three screws.

6. Adjust the traction lockout: refer to Adjusting Recoil Traction Lockout, page 20.

ADJUSTING RECOIL TRACTION LOCKOUT

Tools Required: Medium Blade Screwdriver

There is a recoil lockout arm at front of engine. In conjunction with traction control, it disengages the recoil starter so engine cannot be started when traction control is in the ENGAGE position. Unless the control cable and wire breaks and is replaced, an adjustment should not be required.

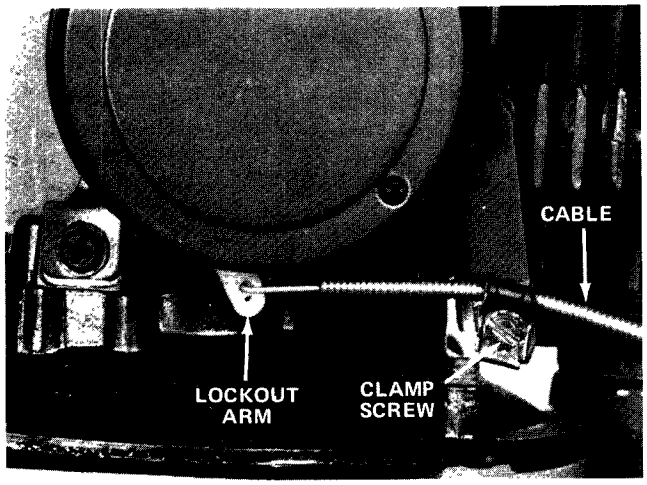
1. ⚠ Assure engine is not running and high tension wire is pulled off spark plug.

2. Adjust the traction control: refer to Adjusting Traction Control, steps 1-5, page 20.

3. Make sure panel-mounted traction control is in DISENGAGE position.

4. Loosen cable clamp screw until cable is free to slide (Fig. 44).

5. Pull recoil starter handle out about 10 inches and hold it in that position.



Recoil Traction Lockout
Figure 44

6. With recoil handle pulled out 10 inches, move control cable, wire, and lockout arm to the left until lockout arm stops (Fig. 44).

7. Allow starter rope to retract slowly.

8. Move the control cable, wire and arm 1/16 of an inch, or one coil of the cable to the right. Secure cable in place by tightening cable clamp screw (Fig. 44).

Note: This adjustment provides slight clearance between lockout arm and starter gear. Clearance allows starter gear to engage with engine ring gear when panel-mounted traction control is in DISENGAGE detent.

9. Test the adjustment by moving panel-mounted traction control to ENGAGE position. Pull recoil starter handle slowly: it must be very easy to pull and engine must not turn over.

10. If mower will be used immediately, push high tension wire onto spark plug. However, do not install high tension wire if mower will not be used: accidental starting will be prevented.

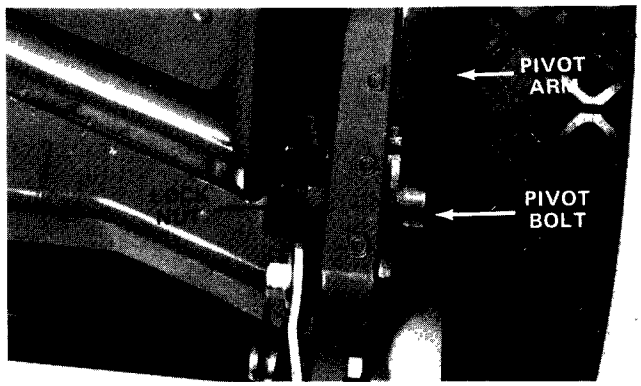
INCREASING TRACTION

Tools Required: 1/2-Inch and 5/8-Inch Open End Wrenches

Traction can be increased by moving rear wheels backward. This is advantageous when bagging moisture-saturated or lush grass that is heavier than normal, dry grass.

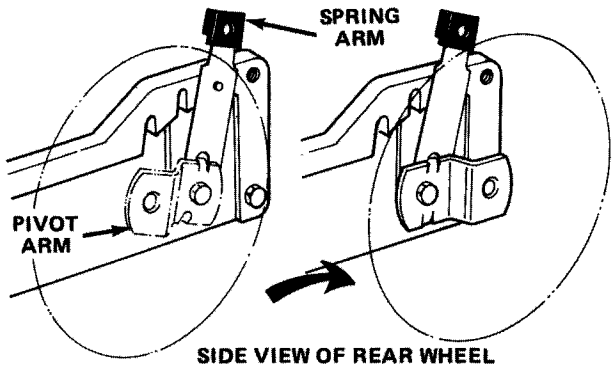
1. Pull high tension wire off spark plug.

2. Loosen pivot bolt and lock nut (Fig. 45) until nut is at end of bolt.



Loosening Pivot Bolt and Lock Nut
Figure 45

3. Pull the wheel with pivot arm out and move wheel to the rear while maintaining position of spring arm (Fig. 46).



Pivoting Rear Wheel Backward
Figure 46

4. When tab in pivot arm engages slot in spring arm, tighten pivot bolt and lock nut (Fig. 45).

IMPORTANT: Assure pivot arm tab engages slot in spring arm. If parts are not seated properly, spring arm will be pinched between shoulder of pivot bolt and mower housing.

5. After rear wheels are moved backward for increased traction, letters for height-of-cut settings do not correspond. To keep height-of-cut adjusted equally, use the corresponding settings in the chart below.

IMPORTANT: Incorrect height-of-cut settings will cause improper pitch of the blade, resulting in loss of power and poor quality of cut.

Front Wheel Setting		Rear Wheel Setting
a	1"	e
b	1-1/2"	d
c	2"	c
d	2-1/2"	b
e	3"	a

maintenance

CHARGING BATTERY

Tools Required: TORO Electro Charger

A new battery is not charged. Therefore, if mower must be used immediately, charge the battery for 4 hours to provide enough energy to start engine several times. However, 48 hours of continuous charging are required for full charge. The 48 hour charge of a new battery is recommended for the initial charge, storage charge, and the spring charge. After a new battery is initially and subsequently used, the following charging times apply.

Type of Mower Use	Charging
When bagging with frequent engine starts	24 hrs *
When mulching with 1 or 2 starts each mowing	24 hrs **
* Charge battery immediately after each mowing.	
**Charge battery once a month during mowing season.	

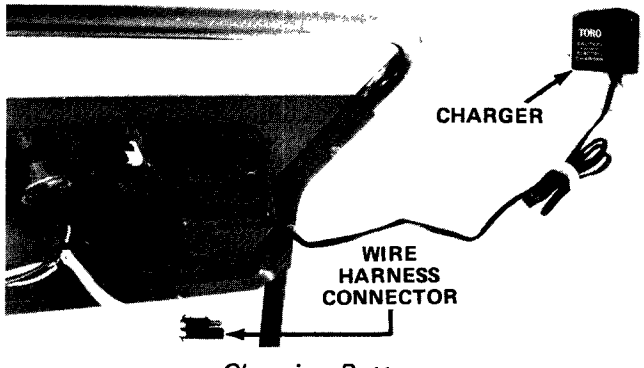
IMPORTANT: Use only the TORO Electro Charger supplied with the mower because it is specially designed for the battery. Using a different charger will likely damage the battery. Remember to use the charger indoors, not outdoors where it can be affected adversely by rain. Charge battery at room temperature – +70° F – whenever possible. Do not charge the battery for more than 72 consecutive hours because battery damage can result.

Note: The battery can be charged while it is on or off the mower. To charge battery while it is off the mower, use steps 1-6. To charge battery on the mower, use steps 1, 3, 4, and 6.

1. Pull wire harness connector off battery terminal.

2. To remove battery, slide it out of mounting slots on back of control panel.

3. Push Electro Charger connector onto battery terminal (Fig. 47). Next, insert charger into power outlet (Fig. 47).



Charging Battery
Figure 47

4. When battery has charged for specified amount of time, pull charger out of the power outlet. Separate charger connector from battery terminal.

5. Hold battery so terminal side is to the left and slide battery between mounting slots on back of control panel. Push connector onto battery terminal.

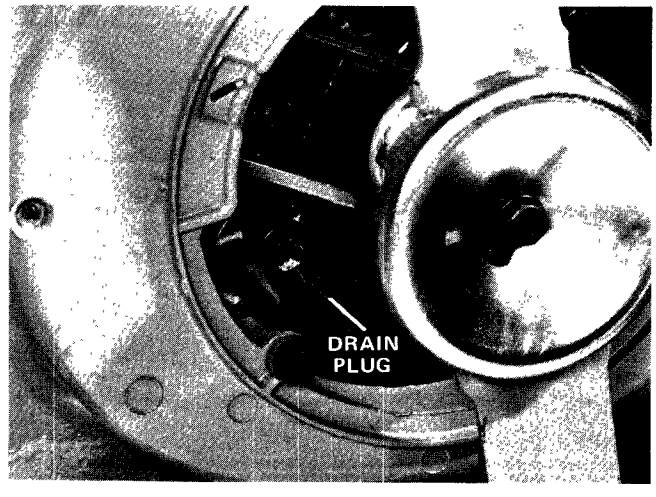
PREPARING MOWER FOR STORAGE

1. Drain gasoline from fuel tank and fuel line: refer to Draining Gasoline, page 17. Start the engine and let it run at idle speed until it stops because all gasoline is used.

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.

2. Pull high tension wire off spark plug and clean area around the plug so foreign matter cannot fall into cylinder when plug is removed. Remove plug from cylinder head and pour two tablespoons of 10W-40 oil into spark plug hole. Pull recoil starter handle slowly to distribute oil on inside of the cylinder. Then install spark plug and tighten it to 15 ft-lb. If torque wrench is not used, tighten plug firmly. DO NOT INSTALL HIGH TENSION WIRE ON SPARK PLUG.

3. Tip mower on its left side, remove drain plug (Fig. 48) from bottom of engine and allow oil to flow into drain pan. After all oil is drained, install drain plug but do not fill crankcase with oil at this time.



Drain Plug on Underside of Housing
Figure 48

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 engine, shrouding and top of mower housing.

5. Clean underside of mower housing: refer to Cleaning Mower Housing, page 19.

6. Check condition of blade and blade cap screw: refer to Inspecting Cutter Blade For Damage, page 18.

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

8. Lubricate wheel bushings and control cables: refer to Lubrication, page 15.

9. Wash the air cleaner element in liquid soap detergent and water: refer to Servicing Air Cleaner, page 16.

10. Fill crankcase with oil: refer to Fill Crankcase With Oil, page 7.

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

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

12. Charge battery fully before storing for the off-season, and store it in a cool, dry place. Battery can be left on mower or removed and stored in a separate place.

13. Store the mower in a clean, dry place. For convenience, upper handle can be folded for more compact storage. Cover the mower to protect it and keep it clean.

CAUTION

Do not dispose of a defective battery by putting it in a fire because an explosion may result, possibly causing personal injury. Always dispose of the battery in a refuse container.

trouble shooting

Problem	Possible Causes	Corrective Action
Engine does not start.	1. Gas tank is empty.	1. Fill fuel tank with gasoline: refer to Fill Fuel Tank With Gasoline, page 8.
	2. Throttle control not in FAST position.	2. Move throttle control to FAST: refer to Starting/Stopping Instructions, page 13.
	3. Traction control not in DISENGAGE detent.	3. Move traction control to DISENGAGE detent: refer to Starting/Stopping Engine, page 13.
	4. Air cleaner element is dirty.	4. Clean air cleaner element: refer to Servicing Air Cleaner, page 16.
	5. Spark plug loose, gapped incorrectly or defective.	5. Check spark plug: refer to Servicing Spark Plug, page 16.
	6. High tension wire loose or disconnected from spark plug.	6. Install high tension wire on spark plug.
	7. Carburetor is flooded.	7. Remove air cleaner element and pull starter rope continuously until carburetor clears itself and engine starts. When engine starts, stop it and install air cleaner assembly.
	8. Blade bolt is loose.	8. Tighten blade bolt to 50 ft-lb.
	9. Faulty points or condenser.	9. Contact Authorized TORO Service Dealer.
Engine starts hard or loses power.	1. Dirt or water in gas tank.	1. Drain gas and clean fuel tank. Fill tank with clean, fresh gasoline: refer to Fill Fuel Tank With Gasoline, page 8.
	2. Vent hole in fuel tank cap is plugged.	2. Clean or replace fuel tank cap.
	3. Air cleaner is dirty.	3. Clean the air cleaner element: refer to Servicing Air Cleaner, page 16.
	4. Blade bolt is loose.	4. Tighten blade bolt to 50 ft-lb.
Engine operates erratically or idles poorly.	1. Spark plug is defective.	1. Install new, correctly gapped plug: refer to Replacing Spark Plug, page 16.
	2. Spark plug gapped incorrectly.	2. Set gap between electrodes at 0.030 of an inch.
	3. Air cleaner is dirty.	3. Clean the air cleaner element: refer to Servicing Air Cleaner, page 16.
	4. Oil level in crankcase is low.	4. Add oil to crankcase: refer to Fill Crankcase With Oil, page 7.
	5. Air slots in engine shroud are plugged.	5. Remove obstruction from slots.
	6. Cooling fins and air passages under engine blower housing are plugged.	6. Remove obstruction from cooling fins and air passages.

trouble shooting

Problem	Possible Causes	Corrective Action
Engine skips at high speed.	1. Air gap between electrodes of spark plug is too close.	1. Set air gap at 0.030 of an inch.
Engine overheats.	1. Cooling air flow is restricted.	1. Remove any obstruction from slots in shroud, blower housing, air passages, and cooling fins on engine.
	2. Oil level in crankcase is low.	2. Add oil to crankcase: refer to Fill Crankcase With Oil, page 7.
	3. Incorrect spark plug.	3. Install Champion CJ-8 spark plug that is gapped at 0.030 of an inch.
Mower vibrates abnormally.	1. Blade bolt is loose.	1. Tighten blade bolt to 50 ft-lb.
	2. Cutter blade is unbalanced.	2. Sharpen cutter blade and check the balance: refer to Sharpening or Replacing Cutter Blade, page 18. Replace the blade if it cannot be balanced.

identification and ordering

MODEL AND SERIAL NUMBERS

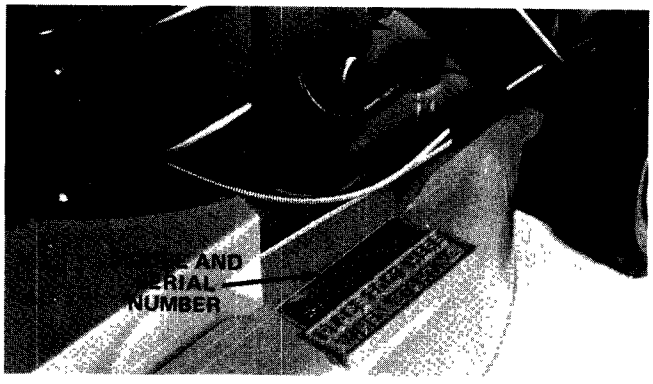
The GRASSMASTER has two identification numbers: a model number and a serial number. The two numbers are stamped into a decal (Fig. 49) located on left side of the mower housing, near the step. In any correspondence concerning the mower, supply model and serial numbers to assure correct information and replacement parts are obtained.

To order replacement parts from an Authorized TORO Service Dealer, supply the following information:

1. Model and serial numbers of the mower.

2. Part number, description and quantity of part(s) desired.

Note: Do not order by reference number if a parts catalog is being used; use the PART NUMBER.



Model and Serial Number Decal
Figure 49

maintenance record

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

maintenance record

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

The Toro Promise

A One Year Limited Warranty

The Toro Company promises to repair any TORO Product if defective in materials or workmanship. The following time periods from the date of purchase apply:

Residential Product	1 Year
Residential Products Used Commercially . . .	45 Days

The costs of parts and labor are included, but the customer pays the transportation costs. Just return any residential product to an Authorized TORO Service Dealer or TORO Distributor.

Should you feel your TORO is defective and wish to rely on The Toro Promise, the following procedure is recommended:

1. Contact any Authorized TORO Service Dealer, TORO Master Service Dealer, or TORO Distributor (the Yellow Pages of your telephone directory is a good reference source).
2. He will either instruct you to return the product to him or recommend another Authorized TORO Service outlet which might be more convenient.
3. Bring the product along with your original sales slip, or other evidence of purchase date, to the service dealer.
4. The servicing dealer will inspect the unit, advise you whether the product is defective and, if so, make all repairs necessary to correct the defect without extra charge to you.

If for any reason you are dissatisfied with the dealer's analysis of the defect or the service performed, you may contact us.

Write:

TORO Customer Service Department
8111 Lyndale Avenue South
Minneapolis, Minnesota 55420

The above remedy of product defects through repair by an Authorized TORO Service Dealer is the purchaser's sole remedy for any defect.

THERE IS NO OTHER EXPRESS WARRANTY. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE DURATION OF THE EXPRESS WARRANTY.

Some states do not allow limitation on how long implied warranty lasts, so the above limitation may not apply to you.

This Warranty applies only to parts or components which are defective and does not cover repairs necessary due to normal wear, misuse, accidents, or lack of proper maintenance. Regular, routine maintenance of the unit to keep it in proper operating condition is the responsibility of the owner.

All warranty repairs reimbursable under The Toro Promise must be performed by an Authorized TORO Service Dealer using Toro approved replacement parts.

Repairs or attempted repairs by anyone other than an Authorized TORO Service Account are not reimbursable under The Toro Promise. In addition, these unauthorized repair attempts may result in additional malfunctions, the correction of which is not covered by warranty.

The Toro Company is not liable for indirect, incidental or consequential damages in connection with the use of the product including any cost or expense of providing substitute equipment or service during periods of malfunction or non-use.

Some states do not allow the exclusion of incidental or consequential damages, so the above exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Litho in U.S.A.