1974

FORM NO. 3310-564

TORO®

MODEL NO. 20440 – 400001 & UP
MODEL NO. 20550 – 400001 & UP
MODEL NO. 20660 – 400001 & UP

OWNER'S MANUAL

21" GRASSMASTER MOWERS
FINGERTIP AND KEY-LECTRIC®

Operating and Safety Instructions



CAUTION: **The following instructios are comparable to the "Instructions for Safe Mowing" adopted by the ANSI Standards Institute. This machine is designed, engineered and tested to offer safe and effective mowing provided it is operated in strict accordance with these instructions. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY.**

TRAINING

1. Never allow children to operate a power mower.
2. Instruct children to stay away from the mower while it is in operation.
3. Read this manual thoroughly. Be familiar with the controls and proper use of the equipment. Learn how to stop the mower quickly

PREPARATION

4. Before starting, clear area of debris.
5. Set mower at highest cutting height when mowing on rough ground or in tall grass.
6. Disengage self-propelled mechanism on mowers so equipped before starting engine.
7. Mow only in daylight or in good artificial light.
8. Do not operate mower in wet grass.
9. Do not operate mower with guards or safety devices removed.
10. Wear substantial shoes and long pants while using mower.
11. Fill gas tank outdoors, never while engine is running or hot. Wipe up any spilled gas thoroughly before starting engine.

OPERATION

12. Give complete and undivided attention to the job at hand.
13. Do not operate mower in the vicinity of other persons or pets.
14. Do not change engine governor settings or overspeed engine.
15. Keep washout port closed when mowing.
16. Never attempt to make a height-of-cut adjustment while engine is running.
17. Stop engine when crossing gravel drive, walk, or road.
18. Stop engine and insure that all moving parts have stopped prior to leaving the operating position (behind handle), removing grass bag and/or unclogging chute. Disconnect spark plug wire prior to performing any maintenance on the unit.
19. Operate the mower at the slowest speed that will cut satisfactorily.
20. Stand clear of the front of self-propelled mowers.
21. Use caution when operating the mower.
22. Check for breakage and repair any damage after striking a foreign object
23. If mower should vibrate abnormally, stop the engine, remove spark plug lead wire and immediately check for the cause. Abnormal vibration is generally an indication of trouble.
24. Never place hands or feet under or into rotating parts or concealed areas. Keep hands and feet clearly away from cutter elements, belts, pulleys, gears, etc., while engine is running. KEEP AWAY FROM DISCHARGE OPENING AT ALL TIMES.
25. Grass deflector, bagging assembly, or side cover MUST be fastened when operating mower. To remove bagging assembly, shut engine off and insure that blade has come to a complete stop.
26. The blade continues to rotate for a few seconds after the engine is shut off. Keep all parts of the body out of the blade area until you are SURE the blade has stopped rotating.
27. Mow slopes from side to side, not up and down. Avoid steep slopes.
28. Never run engine indoors.
29. Do not attempt to over-ride or by-pass safety switches.
30. Rear door must be closed when not bagging.

MAINTENANCE

31. Follow maintenance instructions as outlined in the manual.
32. Have an authorized TORO Service Dealer inspect the mower each year.
33. Disconnect spark plug lead wire and keep wire away from plug before making any adjustment or repair.
34. Keep all nuts, bolts, and screws tight to insure equipment is in safe operating condition. Check blade and engine mounting bolts frequently – insure tightness
35. Never store mower with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing in any enclosure.
36. Keep engine free of grease, grass, or debris buildup.
37. Store gasoline in an approved red metal container in a cool, dry place.
38. Remove key from switch when mower is stored or left unattended.
39. Check grass bag frequently Replace deteriorated bags for safety protection.
40. Safety and performance levels can be assured only by use of specified TORO replacement parts.
41. Maximum engine speed must not exceed 2550 RPM.

These Safety Suggestions are recommended by the OUTDOOR POWER EQUIPMENT INSTITUTE, INC., Washington D.C. and THE TORO COMPANY, Minn.

Price $1.00

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FOREWORD

TORO knows how important proper mowing equipment is for lawn care, and TORO designers have, over the years, strived for and achieved the finest mowing products. You, as a TORO owner, share the most advanced methods and machines available today. Give it the proper care, and it will repay you with precision service.

The more you know about the operation and mechanics of your TORO Rotary Mower the better the job it will do for you. That's why it is important to read this Owner's Manual from cover to cover before attempting to operate the machine. Compare the illustrations to your mower to familiarize yourself with locations of controls, lubrication points, and adjustment sites.

Study the operating and safety instructions thoroughly to insure proper functioning and to prevent injury to yourself and others.

At times minor changes are made in TORO products to improve their efficiency. Should you notice a variation in your mower that is not reflected in the Owner's Manual, see your TORO distributor or his Authorized TORO Service Dealer (see yellow pages) for information and parts numbers. Be sure to give him the model and serial number of your machine. The serial plate is located on the left side of the housing just below the engine.

IMPORTANT: Make sure your dealer has filled out the TORO Registration Card supplied with your machine, and that you have received your copy. This card validates the date of purchase, date of warranty, and will ensure proper post-sale service.

SAFETY



This Safety Alert symbol is intended to call your attention to a message concerning your personal safety. It means . . .

ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!

Read and remember the message. This machine is as safe as good, practical design can make it. Keep the Operating and Safety Instructions in mind while using it.

LOOSE PARTS CHART

LOOSE PART	QUANTITY		
	21"H.P.	21"S.P.	21"KE
Conduit Clip	1	2	2
Thread Screw	4	4	4
Key (Set of 2)	1	1	1
Handle Knob	2	2	2
Curved Head Bolt	2	2	2
Capscrew (5/16 x 7/8")	4	4	4
Locknut 5/16"	4	4	4
Bag Latch	1	1	1
Flat Washer	2	2	2
Locknut (1/4")	2	2	2
Battery	–	–	1
Battery Charger	–	–	1
Starter Rope	–	–	1
Owner's Manual	1	1	1
Registration Card	1	1	1

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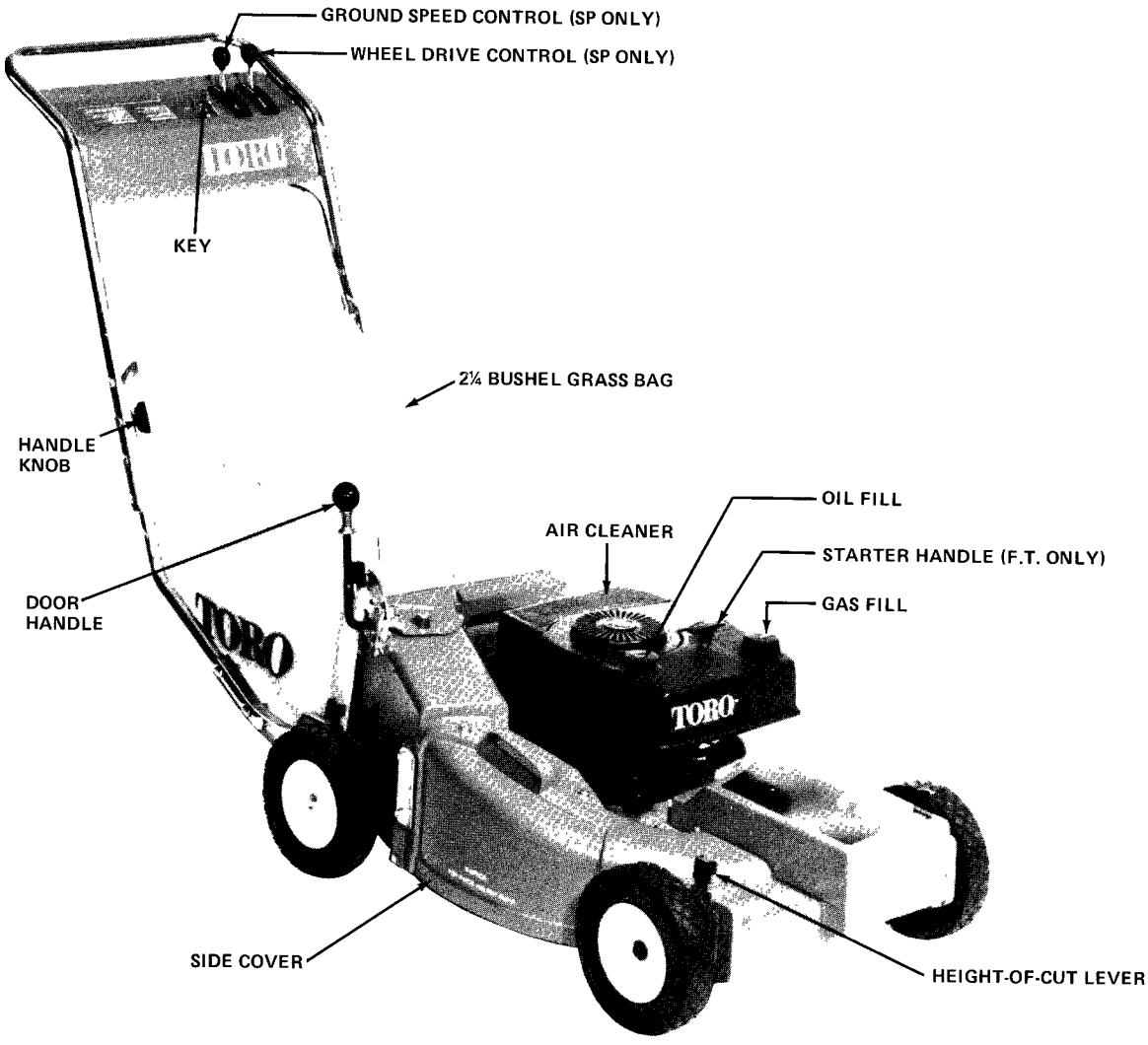
Bloomington, Minnesota 55420 U.S.A.

KNOW YOUR MOWER



SAFETY DECALS

These decals and instructions are located in an area easily visible to the operator, or near an area of potential danger. If the decals become damaged or illegible, install new decals.

MODEL CONFORMS TO SAFETY STANDARDS — MODEL TESTED BY INDEPENDENT LABORATORY

ON TOP OF ENGINE

CAUTION

PUT WHEEL DRIVE CONTROL IN NEUTRAL (DISENGAGE) **BEFORE** STARTING

ON SIDE DOOR AND DEFLECTOR

CAUTION

KEEP HANDS AND FEET CLEAR

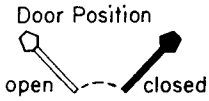
ON HOUSING

CAUTION

do not operate unless side cover or deflector is in place

do not operate unless bag is in place or rear door is closed

Door Position



Swing Door Back and Forth to Close

ON DEFLECTOR

CAUTION

do not start from this side

ON CONTROL PANEL

Safety Instructions

TO ELIMINATE INJURY CAUSED BY BLADE CONTACT

KEEP ALL MOWER GUARDS IN PLACE
KEEP HANDS AND FEET CLEAR
STOP ENGINE WHEN LEAVING MOWER
STOP ENGINE BEFORE ADDING GAS, CHANGING HEIGHT OF CUT, EMPTYING OR ATTACHING GRASS BAG
STOP ENGINE AND DISCONNECT SPARK PLUG BEFORE WORKING ON MOWER

TO ELIMINATE INJURY CAUSED BY THROWN OBJECTS

REMOVE ALL DEBRIS FROM AREA TO BE MOWED
KEEP PERSONS AND PETS A SAFE DISTANCE AWAY

ASSEMBLY INSTRUCTIONS

Carefully remove all mower components from the carton. Slit the carton sides and roll the mower out. The control cables and wiring harness are attached to the engine and to the control panel. Be especially careful not to bend or kink the control cables. Right or left is determined from the operator's position behind the handles.

ATTACHING LOWER HANDLE

Rotate the height-of-cut levers on the rear wheels fully forward to allow access to the capscrew holes in the housing. Hold the lower handle in position and insert the capscrews through the casting and handle brackets, with the capscrew heads to the outside. Secure with the lock nuts.

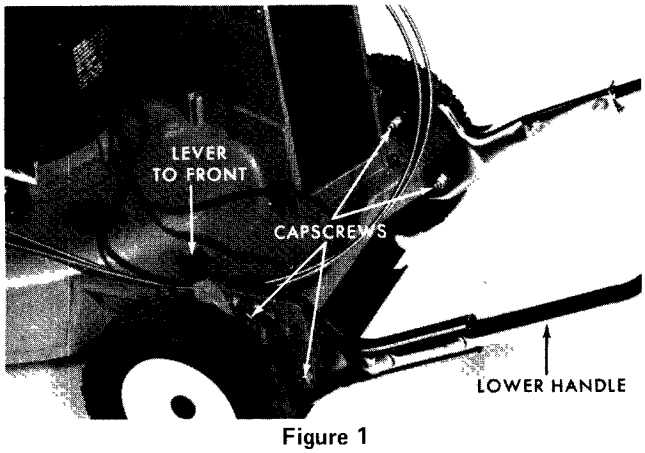


Figure 1

ATTACHING UPPER HANDLE AND CONTROL PANEL

Attach the upper handle to the lower handle with the curved head bolts and handle knobs as shown in Figure 2. The knobs should be installed to the inside of the handle to avoid interference with shrubs, fences, etc. There are 3 handle height positions available. Select the position most comfortable for the operator.

Attach the control panel to the upper handle with the 4 thread screws as shown in Figure 2. The panel must be installed with the control cables and wiring harness on the back side of the lower handle so they will not interfere with the bag frame.

On the self-propelled models, secure the cables to the left handle member with one clip, and secure the wire with the other clip. On the hand-propelled model, only one clip is needed for the wiring harness.

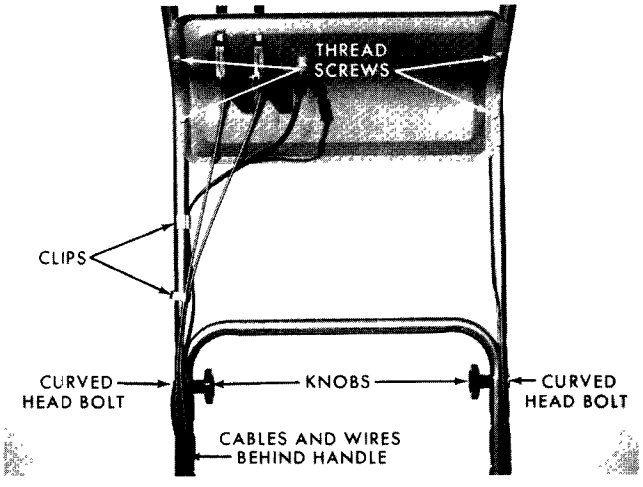


Figure 2

INSTALLING BAG

Install the bag latch (found in the loose parts bag) on the two studs on the bag frame as shown in Figure 3. Install the lock nuts and LEAVE THE NUTS LOOSE.

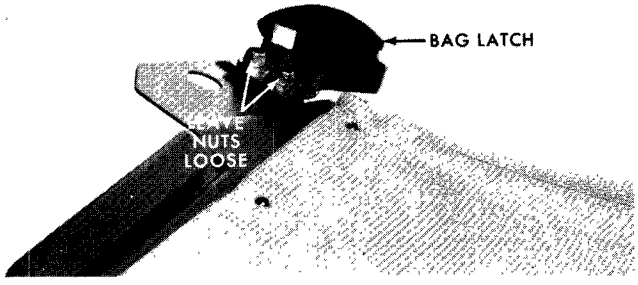


Figure 3

Rotate the door handle fully forward and set the bag in place, with the housing stud through the guide hole in the bag frame.

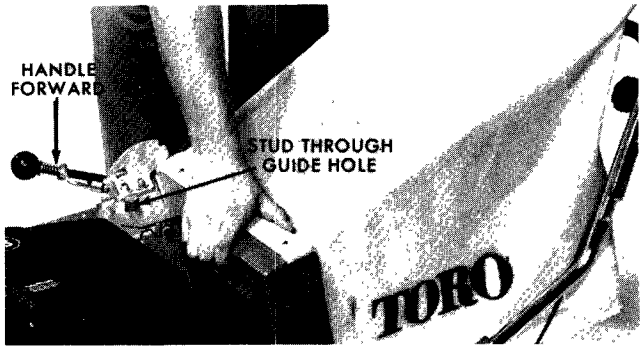


Figure 4

Disengage the handle latch and rotate the door handle fully to the rear. The door must be fully opened and above the offset in the housing to prevent clippings from lodging above the door. (See inset).

While holding the door fully open, slide the bag latch to the rear until the notch holds the handle fully to the rear. Tighten the lock nuts to secure the bag latch in this position.

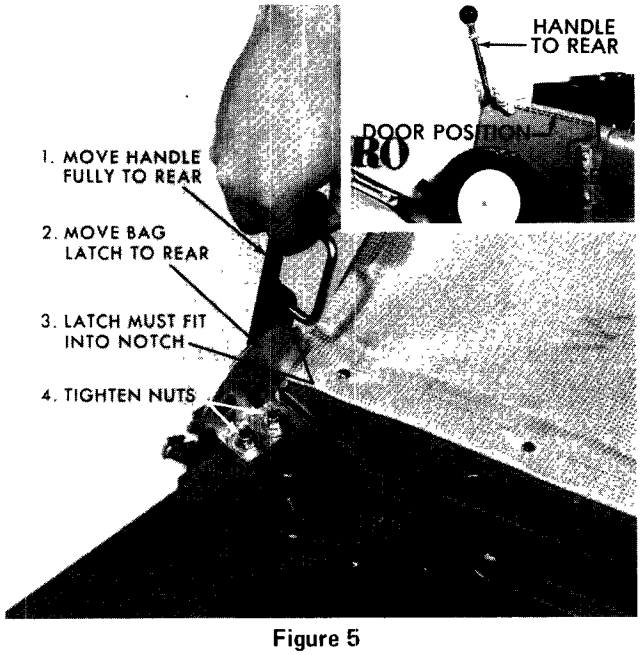


Figure 5

ASSEMBLY INSTRUCTIONS (Continued)



Figure 6

SIDE DISPERSING

If it is desired to use the side dispersing feature, the side cover must first be removed. Disconnect the spark plug wire and remove the 2 flange nuts and lift the side cover up and to the front.

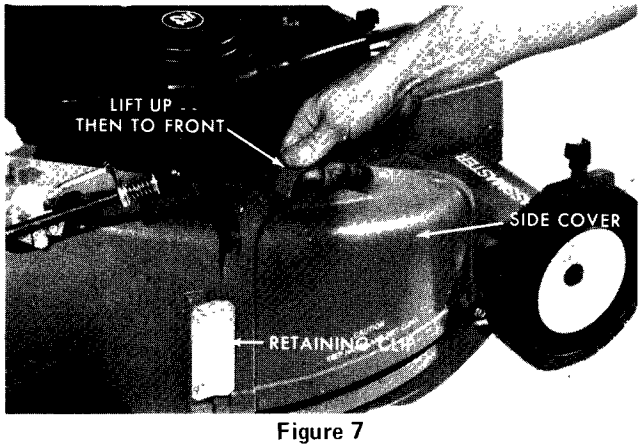


Figure 7

Figure 8 shows the location of the deflector switch This switch prevents the engine from starting or running unless either the side cover or deflector is securely in place. The location of the blade in relation to the opening makes it apparent why it is essential to have either the side cover or deflector in place during operation.

CAUTION: This switch is for your protection. If the switch fails, have your TORO dealer install a new one. Do not attempt to by-pass the switch or to defeat its purpose.

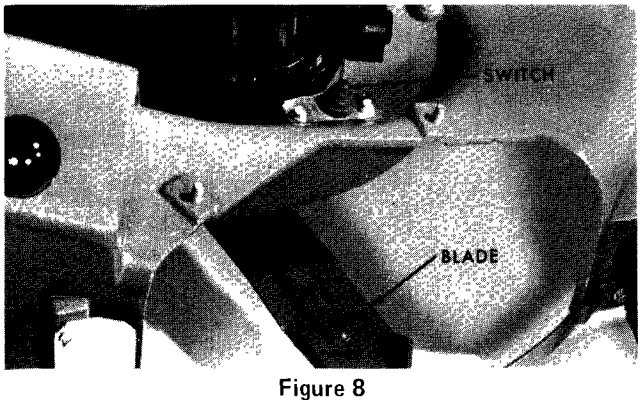


Figure 8

Install the deflector as shown in Figure 9 and secure with the flange nuts. Be sure the deflector is securely in place to activate the switch. Connect the spark plug wire.

NOTE: Be sure that retaining clip is always on outside of side cover or deflector as shown in Figures 7 and 9.

CAUTION: The rear door must be closed and latched when using the side dispersing feature.

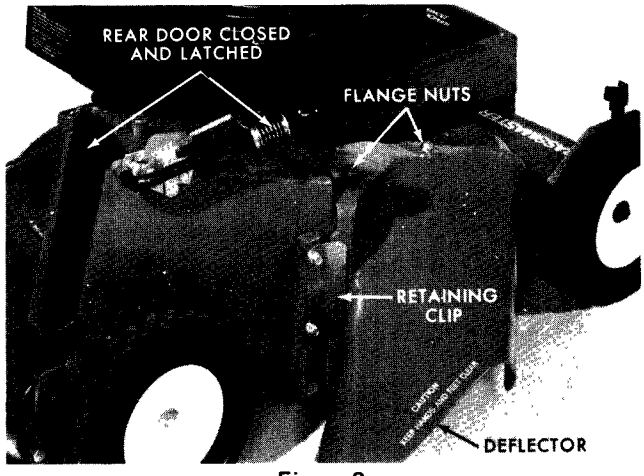


Figure 9

INSTALLING POW-R-PACK (Key-Lectric Models Only)

The new POW-R-PACK will not be charged. Charge this POW-R-PACK for at least 4 hours to provide enough energy to start the mower several times. It should be charged for a period of 48 hours to bring it to a fully charged condition.

To install the POW-R-PACK, hold it with the connector to the left, and slide it down in the brackets until it fits snugly in position. Connect the receptacle to the connector on the POW-R-PACK. Fasten the wiring harness to the left side of the handle with the clip

NOTE: An alternate battery may be used, as shown in the inset. This battery requires an adapter to mount it in the brackets. The charging instructions are the same.

IMPORTANT: The wiring harness must be secured to the rear of the handle.

For charging instructions, see page 12.

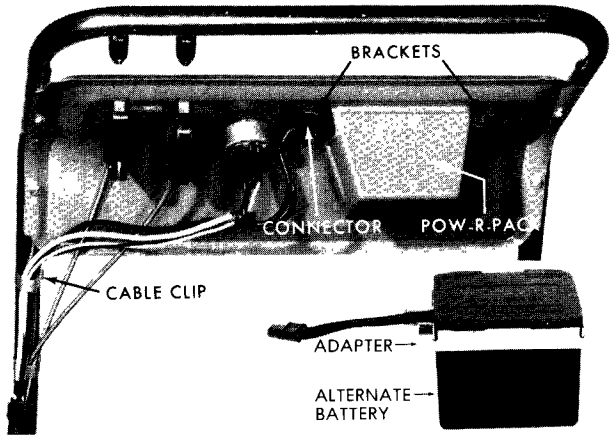


Figure 10

PREPARATION BEFORE STARTING

KNOW YOUR CONTROLS

Wheel Drive Control (SP only) – This control engages and disengages the front wheel drive. There is a detent to hold the lever in the disengaged position. Move the lever to the left and forward to engage the drive. Pull the lever to the rear (into detent position) to disengage the drive.

CAUTION: This lever must be disengaged when starting the engine. Disengaging this lever does NOT stop the engine or blade.

Wheel Drive Speed Control (SP Only) – This lever controls the speed of the front drive wheels (not the engine speed). The speed is infinitely variable between approximately 2.3 MPH with the lever in the SLOW position, to 3.4 MPH with the lever in the FAST position. Change the speed while cutting to suit the cutting conditions.

IMPORTANT: This lever DOES NOT affect the engine or blade speed.

Switch – The key switch must be turned ON to allow the engine to be started and run. On the Fingertip Start models, disengage the wheel drive, turn the key to the ON position, and pull the starter rope.

On the Key-Lectric models, disengage the wheel drive and turn the key to the START position. Release the key when the engine starts, and the key will automatically return to the ON position.

To stop the engine, disengage the wheel drive (on self-propelled models) and turn the key to the OFF position.

CAUTION: The blade continues to rotate for a few seconds after the engine is shut off. Do not place any part of the body in the blade area until you are sure the blade has stopped rotating.

WHEN THE MOWER IS UNATTENDED, REMOVE THE KEY TO PREVENT UNAUTHORIZED PERSONS FROM OPERATING THE MOWER.

FIXED ENGINE SPEED

The carburetor is pre-set at the factory to run the engine at the proper speed. There are no adjustments on the carburetor, and there is no throttle to vary engine speed.

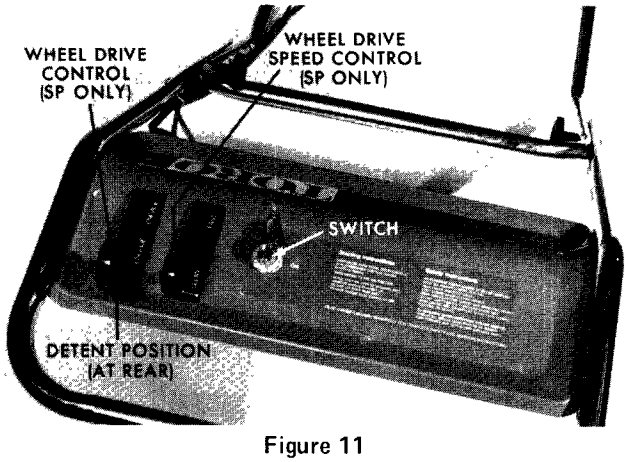


Figure 11

FILLING WITH OIL

1. It is very important that the mower be placed on a level surface to fill the engine crankcase properly.
2. Remove oil cap. Pour approximately 21 ounces (about 1-1/3 pints) of A.P.I. classification MS, SC, SD, or SE SAE 10W-40 oil slowly into the filler tube.
3. Oil level must be brought up to the FULL mark on the dipstick. Rock the engine gently to release air trapped in the crankcase.
4. Reinstall dipstick; then remove and check oil level. (Be sure dipstick was all the way down.)
5. Oil level must be kept at the FULL mark on the dipstick. DO NOT OVERFILL.
6. Oil level must be checked when the engine is not running and mower is on a level surface.

NO SPECIAL ADDITIVES SHOULD BE USED WITH THE RECOMMENDED OILS.

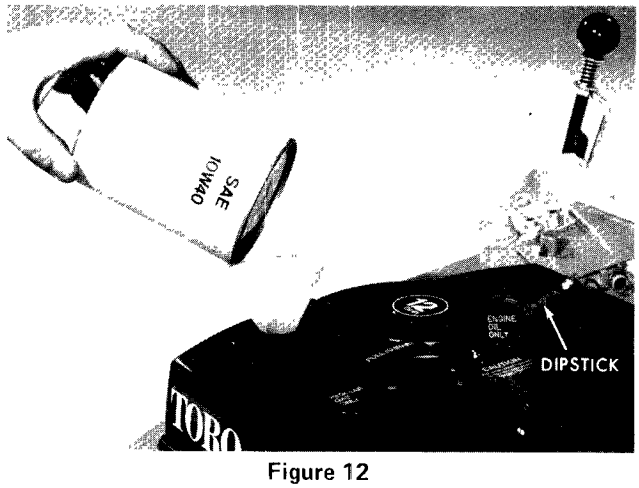


Figure 12

⚠ FILLING GAS TANK

Fill the gas tank with a fresh supply of regular gasoline The use of the new low lead or lead-free gasoline will help reduce combustion deposits and extend valve life and is recommended where available. Gasoline should be purchased in small quantities (not more than 30 days supply) to assure fresh gasoline with volatility tailored for the season. Fill tank completely.

Gasoline is an extremely flammable fuel, and extreme caution must be used when storing and handling it. Gasoline is intended only as a fuel for internal combustion engines. Do not use it for any other purpose.

It must be stored in approved containers in a cool, well-ventilated place – never in the home.

The cap must be kept in place on the container except when actually pouring fuel.

Use a funnel or a spout when pouring to prevent spilling.

Many children like the smell of gasoline – keep it out of their reach – the fumes are dangerous to inhale as well as being explosive.

Do not smoke while adding gas.

Do not add gas to your machine in an enclosed area. Fill gas tank outdoors and wipe up any spilled gas thoroughly before starting.

PREPARATION BEFORE STARTING (Continued)

Do not add gas to your machine while the engine is hot or running.

Keep gas and gas storage cans clean. Keep the area around the gas cap free from debris buildup.

The tank capacity is 1-1/3 quarts.

DO NOT MIX OIL WITH THE GASOLINE. DO NOT USE PREMIUM GAS, WHITE STOVE GAS, OR GASOLINE ADDITIVES.

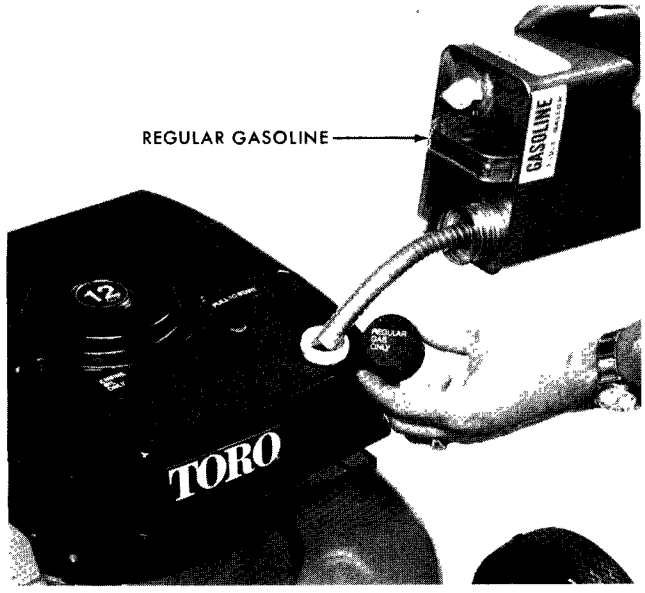


Figure 13

HEIGHT-OF-CUT

CAUTION: Shut engine off before adjusting height-of-cut.

To adjust height, grasp lever and wheel and squeeze together, moving both until lever stud is at desired position; then release. Be sure stud enters recess in housing. See Figure 15 for available heights.



Figure 14

The height-of-cut is adjustable from approximately 1 inch to 3 inches in 1/2 inch increments, with an additional height of 5/8 inch on the front wheels only. When the 5/8 inch setting is desired, place the rear wheels in the 1 inch setting.

For your convenience, letters are provided at the various cutting heights. For normal cutting, all four wheels should be set at the same letter.

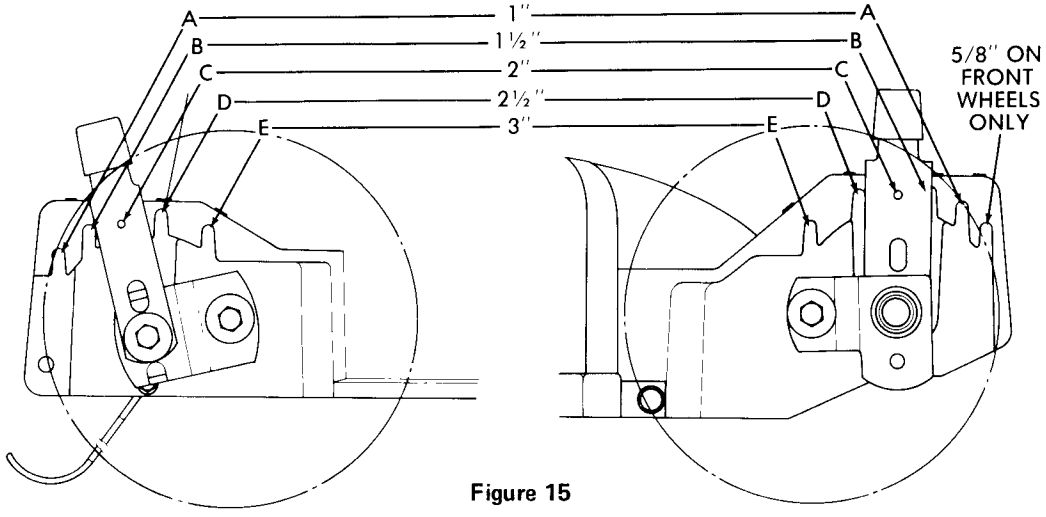


Figure 15

STARTING INSTRUCTIONS

IMPORTANT: The carburetor is equipped with a prime well which supplies an extra-rich charge of fuel for starting. If the engine does not start after 2 or 3 pulls on the Fingertip Start models, or after about 5 seconds of cranking on the Key-Lectric models, wait about 10 seconds to allow the prime well to refill. Repeat this procedure until the engine starts.

CAUTION: Remove key from switch when mower is stored or left unattended.

FINGERTIP START

1. ⚠ On self-propelled models, place the wheel drive control lever in the disengaged position.
2. Turn the key to the ON position.

STARTING INSTRUCTIONS (Continued)

FINGERTIP START (Continued)

3. Start mower from the left side only. Place foot on step pad on housing as shown in Figure 16 and grasp starter handle. Keep other foot away from beneath housing. Pull with a full stroke to start engine. Do not allow starter rope to snap back. Allow fingertip starter handle to return slowly by keeping hold of starter handle.
4. See Engine Break-In instructions on page 9.
5. To stop engine, disengage wheel drive control on self-propelled models, then turn key to OFF position. On hand-propelled models, merely turn key to OFF position.

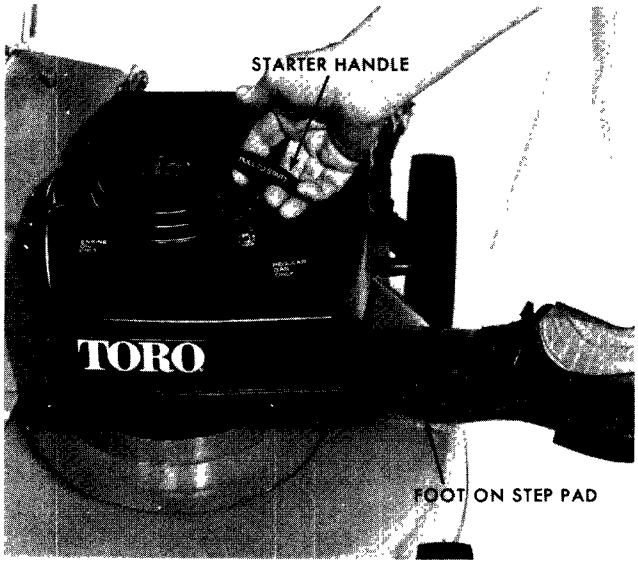


Figure 16

KEY-LECTRIC START

The new POW-R-PACK will be wholly discharged when you receive your mower. It should be charged for a period of 48 hours to bring it to a fully charged condition. (See charging instructions on page 12.)

1. ⚠ Place the wheel drive control lever in the disengaged position.
2. Insert key into switch until securely snapped into position and turn clockwise to start engine. When the engine has started, release key; the key-switch will automatically return to the ON position.
3. If engine does not start after 5 seconds of cranking, wait 10 seconds to allow the prime well in the carburetor to refill to provide an extra-rich mixture for starting. Repeat this procedure until the engine starts.

IMPORTANT: If Key-Lectric mower fails to crank (turn engine over) check all electric contacts for proper connections or charge the POW-R-PACK; see page 12.

4. See Engine Break-In instructions, page 9.
5. To stop engine, disengage wheel drive control, and turn switch to OFF.



Figure 17

ATTENTION: INOPERATIVE STARTER

Should starter gear jam in engine ring gear and prevent engine from rotating, disconnect the spark plug wire. Open the snap cover over the engine. Turn the starter cup on the engine **counterclockwise** until the gears break free. Close the cover and re-connect spark plug wire. Your mower is now ready for starting.

ALTERNATE STARTING METHOD (KEY-LECTRIC MODEL)

If the mower fails to start under battery operation, check all electrical contacts for proper connection. To recharge the battery, see page 12. It is possible to start your mower manually; proceed as follows:

1. ⚠ Place wheel drive control lever in the disengaged position.
2. Raise the hinged cover over the engine starter cup. See Figure 18.
3. Turn the key to ON position.
4. Insert knot on the rope supplied with your mower into the slot on the starter cup and wrap the rope around the cup in a clockwise direction.
5. Start mower from left side only. Place foot on step pad, and assume a safe well balanced position before pulling rope to start engine.
6. If engine does not start after 2 or 3 pulls, wait 10 seconds to allow the prime well in the carburetor to refill, then pull the starter rope again. Repeat this procedure until the engine starts.
7. Close the cover over the starter cup.
8. If the battery will not hold a charge, see your TORO dealer.

STARTING INSTRUCTIONS (Continued)



Figure 18

CAUTION: When using the alternate starting feature, be sure to stabilize the machine to prevent it from rolling or moving when the rope is pulled. Be sure hands and feet are clear of housing.

ENGINE BREAK-IN

When the engine is first started, allow it to run for approximately 15 minutes. If it is shut down before this break-in period, the engine may require a 15 minute cooling-down period before restarting.

OPERATING INSTRUCTIONS

CAUTION: The blade is turning whenever the engine is running. Before making any repairs or adjustments, turn the switch OFF, and wait until the blade has come to a complete stop. The blade is NOT stopped by disengaging the Wheel Drive Control.

BAGGING

1. Make sure the side cover is securely in place.
2. Door handle must be in forward position (door closed) before placing bag on mower.
3. Rotate the door handle to the rear (door open) until the handle is latched in the notch in the bag latch. The mower is now ready for bagging.

IMPORTANT: Empty the bag often to avoid plugging the housing.

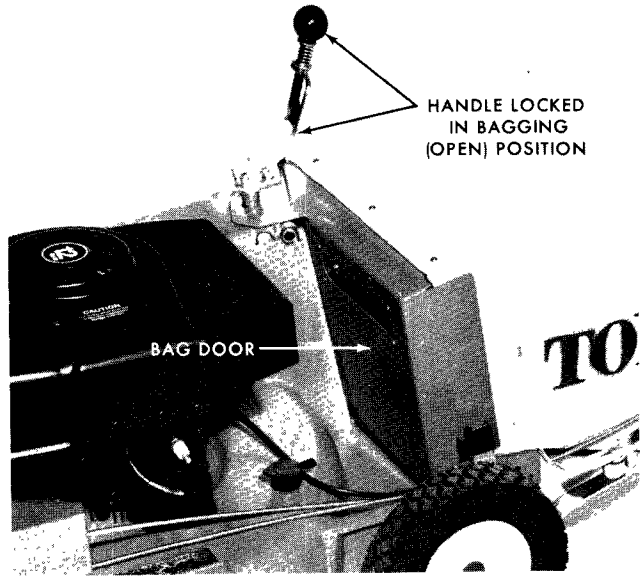


Figure 19

4. ⚠ Shut off the engine before removing the bag.
5. Grasp bag with both hands as shown in Figure 21. Lift bag straight up. (Do not lift rear of bag first.)
6. **IMPORTANT:** If the door cannot be closed due to grass clippings clogging the housing, rotate the door back and forth, gently patting the grass until it is pushed into the bag and the door is completely closed.

NOTE: Do not force the door closed. This will compact the grass in the housing, and may result in damage to the door or the handle.



Figure 20



Figure 21

OPERATING INSTRUCTIONS (Continued)

7. Dump the contents of the bag by tilting the bag forward as shown in Figure 22, and shaking so the grass sifts out. Do not try to dump all the grass at once; tilting and sifting will provide easier dumping.



Figure 22

8. Reinstall the bag on the mower and move the lever to the rear position to open the door and secure the bag.

BAGGING TIPS

WARNING: The grass bag is made of a material that will catch and contain the majority of foreign objects which may be thrown into it, such as small stones, etc. However, under normal usage, the bag material is subject to deterioration and wear and should, therefore, be frequently checked for bag replacement. Use genuine TORO Replacement Bags.

1. ⚠ ALWAYS INSTALL THE BAGGING ATTACHMENT BEFORE STARTING ENGINE.
2. Walk leisurely behind your mower; do not run.
3. Avoid cutting wet grass; wait until it dries.
4. Tall grass requires maximum height-of-cut setting.
5. To lessen clogging of housing, empty bag often.
6. Do not wash bags. This only dissolves sizing and shortens life of fabric.
7. Do not use bag when mowing rough, uncertain areas.
8. ⚠ ALWAYS SHUT OFF ENGINE when removing or reinstalling bag.
9. To empty bag, stop engine and ensure that blade has stopped rotating. Remove bag as described in this manual.

SIDE DISPERSING

1. ⚠ Disconnect the spark plug wire.
2. Remove the side cover and install the deflector on the two threaded studs and under the retainer clip as shown in Figure 23. Be sure it is attached securely so the deflector switch is activated.
3. Door handle must be in forward latched position so door is closed. Connect the spark plug wire.

CAUTION: The door must be closed and latched whenever using the side discharge.

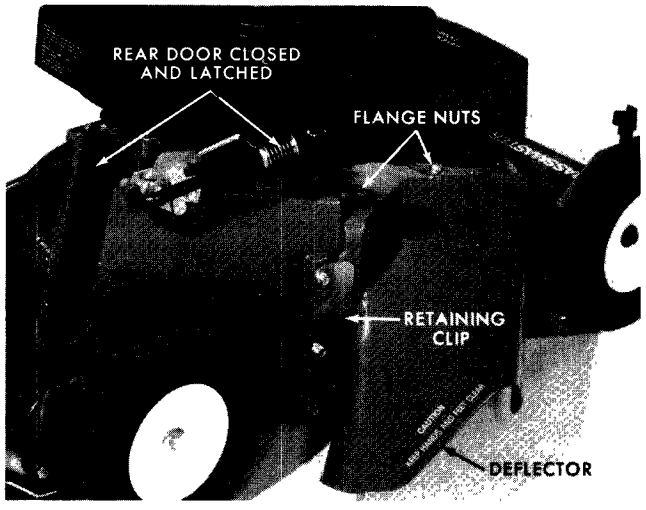


Figure 23

MULCHING

1. ⚠ Disconnect the spark plug wire.
2. Install the side cover. Be sure it is attached firmly on the two threaded studs and under the retainer clip to activate the deflector switch.
3. Door handle must be in forward latched position so door is closed.
4. Connect the spark plug wire.

CAUTION: The door must be closed and latched whenever using the mulching feature.

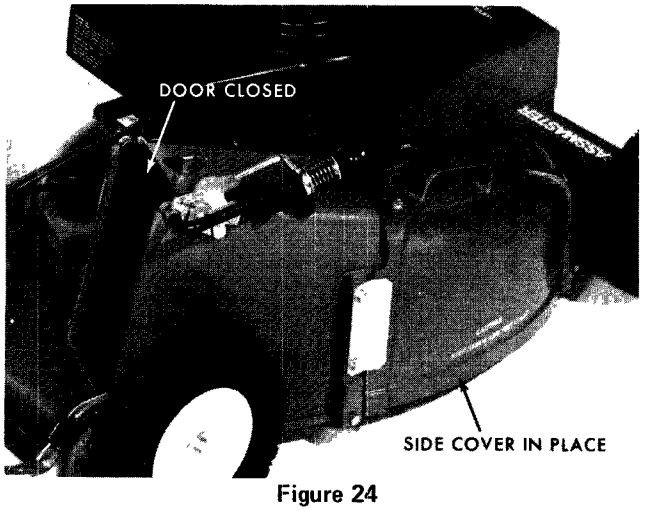


Figure 24

OPERATING INSTRUCTIONS (Continued)

REAR DOOR LATCH

If it becomes necessary to open the door when the bag is not installed (when side dispersing or mulching), proceed as follows:

1. ⚠ Turn the key to the OFF position and wait until the blade has come to a complete stop. Disconnect the spark plug wire.
2. Hold the safety latch down with one hand while disengaging the door latch with the other. Move the handle to the rear latched position to open the door. See Figure 25.

⚠ CAUTION: The door must not be open during operation unless the bag is installed.

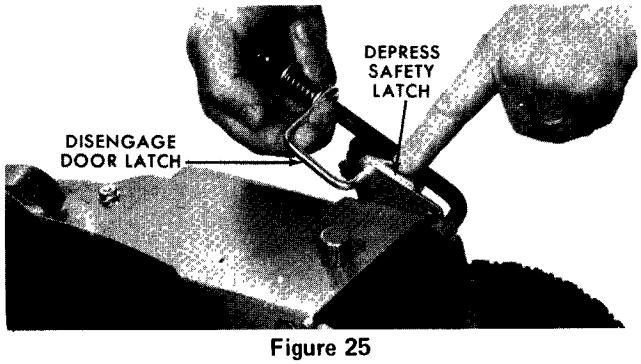


Figure 25

LAWN CARE

Successful lawn care depends as much on the manner in which the mower is used as it does on mower performance. The rotary blade is turning at all times when the engine is running. For best performance, we recommend mowing in the forward direction.

During the break-in period of your new TORO Rotary, always allow the engine to warm up for a minute or so before mowing. Following this procedure for the first several cuttings will insure better performance and longer engine life.

⚠ ATTENTION OPERATOR: The blade continues to rotate for a few seconds after the engine is shut off. Do not place any part of the body in the blade area until you are sure the blade has stopped. Check the blade periodically for tightness.

Try your new mower on level grass for the first cutting. As you gain experience you can attempt the tighter areas and slopes. Be thorough and slightly overlap each swath. For ease and appearance, mow slopes or banks horizontally. Avoid mowing up and down as this causes slipping and unbalanced footing.

To cut grass at edge of flower beds, hold mower level and approach head on. Suction will lift overhanging grass into blade. To mow around posts, trees, and other objects, use the side of mower in close and follow contour of object. You can successfully mow around dug out trees and shrubs by adjusting wheels to compensate for shallow spots.

To cut rough terrain or heavy growth, raise front wheels by bearing down on handle. Mower should be set at maximum 3-inch cut setting. After rough growth and objects are cleared away, reduce cutting height as desired.

BELOW ARE SOME IMPORTANT FACTS THAT WILL AID YOU IN GROWING AND MAINTAINING A HEALTHY AND ATTRACTIVE LAWN. MOWING PATTERNS, WATERING, AERATING, FERTILIZING, SEEDING, EXISTING GRASS, SOIL VARIATIONS, AND CLIMATE ARE ALL FACTORS CONTRIBUTING TO THE FINAL RESULTS.

CUTTING WET, THICK OR LUSH GRASS. When using the side dispersing feature, mow in a counterclockwise direction, starting at the extreme border and working towards the center. This method saves the cutting blade from the burden of re-cutting discharged grass, and results in more even grooming.

IMPORTANT: When cutting wet grass with a self-propelled mower, increased traction can be obtained by lifting handle slightly upward to place more weight on front (driving) wheels.

Height-of-cut should not be set too low on thick, lush lawns. Such grass, if cut too short, may die. This also applies to springy, heavy growth lawns. If blade is set too low, the wheels may sink into the lawn, causing the housing to drag on the grass and baffle the discharging effect of the cutting blade. New grass, if possible, should be cut in the afternoon when it is dry. Wet grass tends to pack inside the housing, especially if height-of-cut is set low. To clean, see washout instructions.

CUTTING THIN OR DRY GRASS. When using the side dispersing feature, dry, thin grass may be cut in a clockwise direction, moving from outer edge towards the center. On each successive cut, the blade will pick up the previously discharged clippings and throw them towards the center of the lawn where they may be picked up with a minimum of effort.

⚠ CAUTION: The Toro Company does not recommend the use of "thatching" or "rake" type replacement blades. The use of this type of blade could result in damage to the mower or personal injury to the operator or bystanders.

REAR SHIELD

The flexible REAR SHIELD gives added protection to the operator, pivots to ride smoothly over uneven ground, and maneuvers easily.

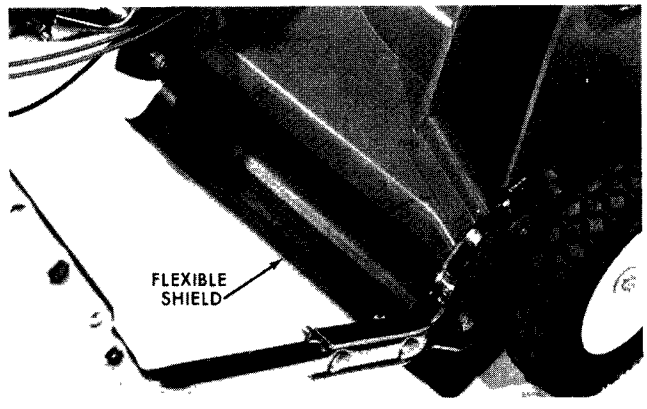


Figure 26

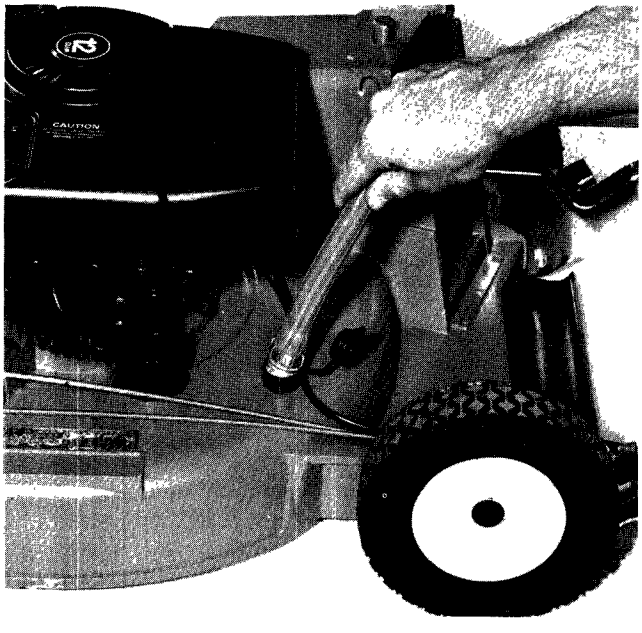
OPERATING INSTRUCTIONS (Continued)

WASH-OUT PORT

CAUTION: Shut off engine and remove the bagging attachment before using the wash-out port. Be sure the door is closed and latched.

1. After mowing, set the mower wheels for the lowest position (shortest cut).
2. Open wash-out plug cap. Start the engine. Place hose end (without nozzle) into opening as shown in Figure 27 and turn the water on to a moderate pressure. Run the engine and water for about 2 minutes. This flushes out accumulations of grass clippings from the underside of the housing. Do not stand in line with the discharge opening.

IMPORTANT: On Key-Lectric Start models, do not spray water directly on starter motor.



3. ⚠ If dry, bulky accumulations of grass clippings do occur, disconnect spark plug wire and drain gasoline. Tip mower onto its left hand side and scrape out the debris.

POW-R-PACK CHARGING (Key-Lectric start models only)

The new POW-R-PACK will **not** be charged when you receive your mower. Charge this POW-R-PACK for 48 hours with the TORO charger furnished with your mower. Charging is most effective when performed near room temperature (approximately 70°F).

IMPORTANT: Use only the TORO charger supplied with your mower. Other chargers may permanently damage the POW-R-PACK. The charger is approved for indoor use only.

When bagging (with frequent engine starts per mowing), charge POW-R-PACK for 24 hours after each mowing.

When not bagging (one or two starts per mowing), charge POW-R-PACK for 24 hours once a month during mowing season.

DO NOT LEAVE POW-R-PACK ON CHARGE FOR OVER 72 HOURS.

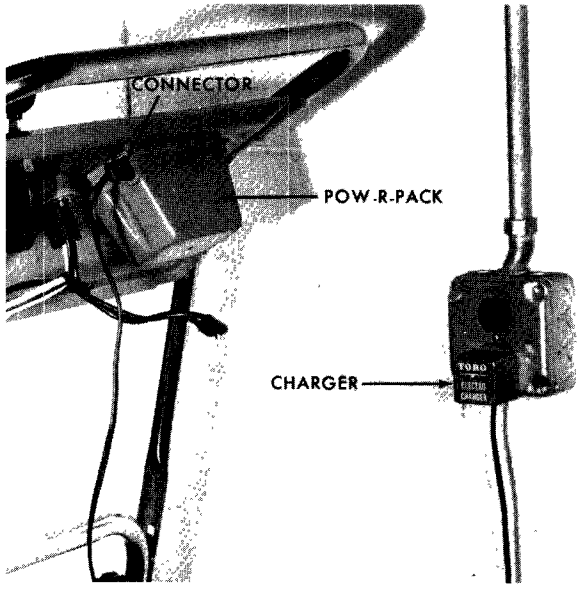


Figure 28

The POW-R-PACK can be charged as shown in Figure 28, in place on the mower, or it can be removed for charging in a more convenient location.

1. To remove the POW-R-PACK, first disconnect the mower wiring harness. Slide the POW-R-PACK out of the brackets.
2. Insert charger connector into POW-R-PACK receptacle. Insert charger into a **115-volt, AC, single-phase, 60-cycle outlet.**

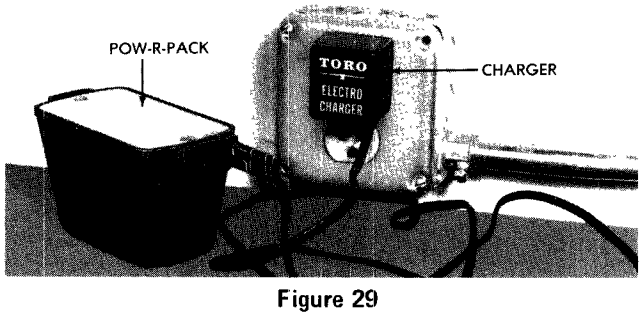


Figure 29

3. After the POW-R-PACK has charged for the required time, remove charger from outlet and disconnect the charger connector from the POW-R-PACK receptacle.
4. Connect mower wiring harness to POW-R-PACK receptacle.
5. Replace POW-R-PACK on the mower by sliding the POW-R-PACK down between the brackets until it fits snugly into position.

NOTE: Do not leave charger plugged into POW-R-PACK unless the charger is plugged into a wall receptacle.

MAINTENANCE

CAUTION: Before performing any maintenance on your mower, disconnect the spark plug lead wire.

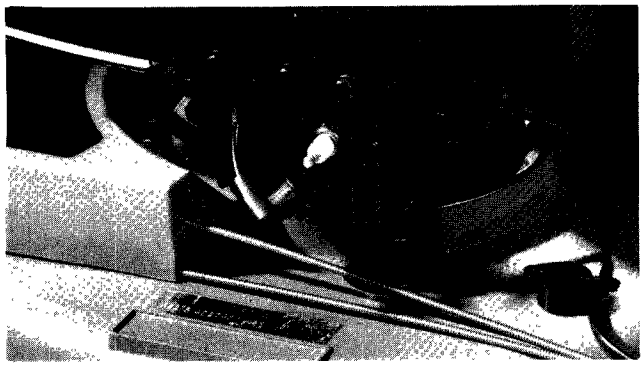


Figure 30

SPARK PLUG

Use a Champion CJ-8 or equivalent for replacement. Clean and reset the gap at .030 inches every 25 hours of operation. Apply light coating of graphite grease on threads before replacing plug. If plug is pitted or cannot be cleaned easily, install a new plug.

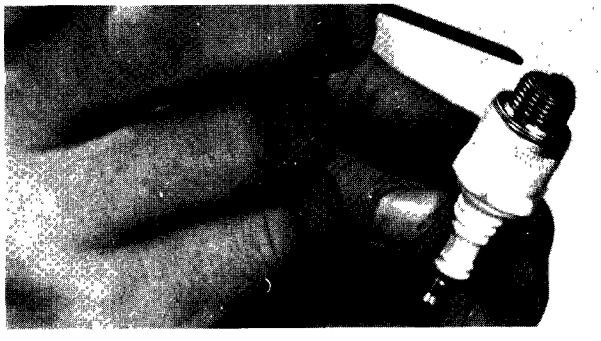


Figure 31

BLADE REMOVAL AND SHARPENING

1. ⚠ Disconnect spark plug wire and drain gasoline.
2. Set mower on its left side. Protect hand with heavy glove or padding, grasp blade as shown, and turn blade screw counterclockwise. Remove screw, lockwasher, anti-scalp cup, and blade.



Figure 32

3. Sharpen cutting ends of blade with a file. File the top side only. Maintain the original bevel for a fine cutting edge. The blade will remain in balance if the same amount of material is removed from each end.

⚠ REPLACE BLADE IF EXTENSIVELY DAMAGED OR OUT OF BALANCE.

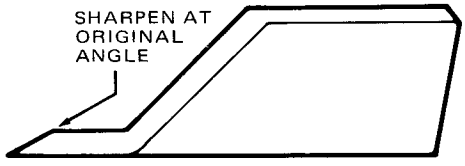


Figure 33

4. Assemble cutter blade and anti-scalp cup assembly in sequence as illustrated. Tighten down cutter blade screw securely to 45 to 60 ft-lbs. Connect spark plug wire.

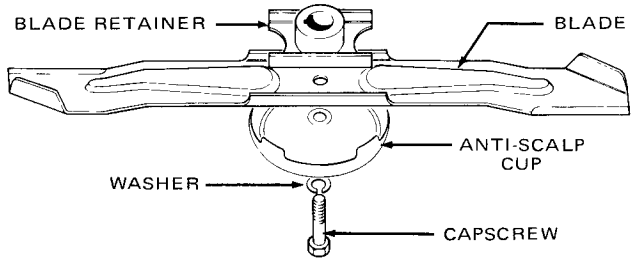


Figure 34

5. Check the cutter blade capscrew frequently for tightness, especially after hitting a solid object with the blade. Tighten as required.

CAUTION: Use only genuine TORO replacement cutter blades. DO NOT use "thatching" or "rake" type blades. Substitutes may endanger performance and personal safety. The TORO replacement blades are designed specifically for this mower housing, engine speed, and bagging design.

WHEEL DRIVE CONTROL CABLE

If new parts have been installed, it will be necessary to adjust the wheel drive control cable. Proceed as follows:

1. ⚠ Disconnect the spark plug.
2. Remove the belt cover.
3. Loosen the cable locking screw so the cable can move freely.
4. Move the wheel drive control lever as far to the rear as possible (disengaged position).
5. Pull the cable and inner wire as far to the rear as possible to disengage the clutch. Secure the cable in this position with the cable locking screw.
6. Be sure the stop screw is turned all the way down and secured by the jam nut. This screw prevents the gear box from tilting backward and the belt possibly jumping out of the pulley.
7. Reinstall the belt cover and connect the spark plug wire.

MAINTENANCE (Continued)

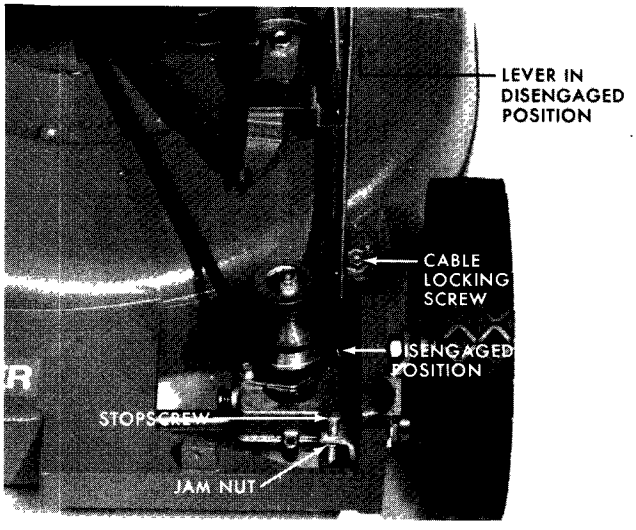


Figure 35

WHEEL DRIVE SPEED CONTROL CABLE

If a new belt or other related parts have been installed, it will be necessary to adjust the wheel drive speed control cable. Proceed as follows:

1. ⚠ Disconnect the spark plug wire.
2. Remove the belt cover.
3. Loosen the cable locking screw so the cable can move freely.
4. Place the speed control lever in the SLOW position.
5. Rotate the idler bracket counter-clockwise and force the variable pulley halves together as shown in Figure 36, so the belt is riding out near the edge of the pulley.
6. Position the cable and inner wire to obtain a clearance of .040", ± .020" between the idler bracket and the idler bracket lever as shown in Figure 36. Secure the cable in this position with the locking screw.

NOTE: A paper match is approximately .040" thick and may be used as a gauge when adjusting the cable.

7. Reinstall the belt cover and spark plug wire.

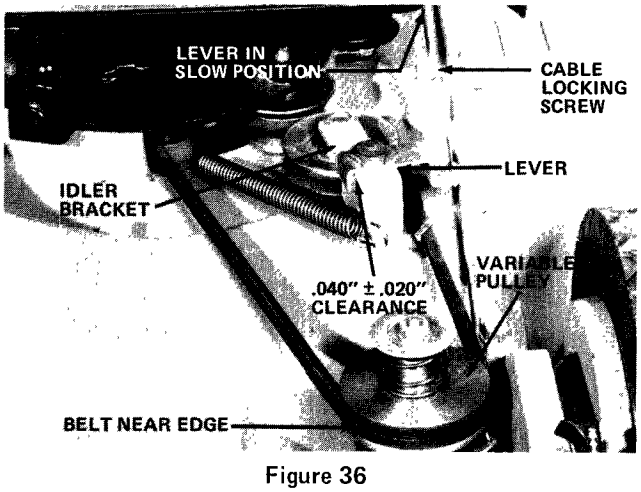


Figure 36

ENGINE COOLING

Your mower is equipped with an air-cooled engine. Keep the blower screen, blower fins on the flywheel, and the fins on the cylinder and cylinder head free from grass and dirt. Clogging will restrict the flow of the cooling air, and could result in engine overheating and damage.

DRAINING THE CRANKCASE OIL

⚠ Before draining the crankcase oil, drain the gas tank, or run the mower until the engine is completely out of gas. Remove the spark plug wire.

Drain the oil after first 2 hours of operation, preferably when engine is warm, to hasten drainage. Thereafter, change oil after every 25 hours of operation, or once each year, whichever comes first.

1. Remove dipstick from filler tube.
2. Tip the mower straight to the front and drain the oil into a shallow container.
3. Refill the Crankcase with fresh oil according to the instructions on page 6.

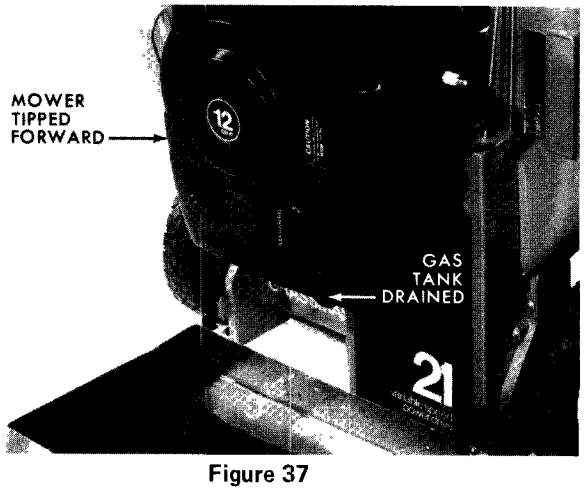


Figure 37

4. There is a drain plug in the engine sump, under the mower housing, in case it is desired to drain the oil out of the bottom. Place the mower on two sawhorses or similar supports, and observe the preceding safety precautions before draining.

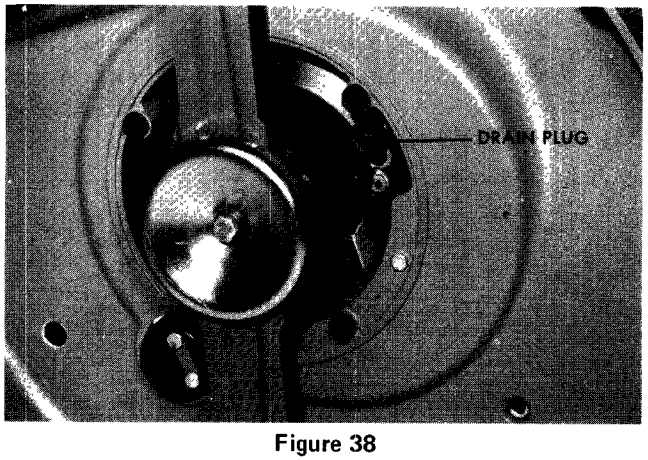


Figure 38

CHECKING POW-R-DRIVE (SELF-PROPELLED MODELS ONLY)

The gear case is filled with oil and sealed at the factory. No maintenance to gear case is necessary under normal operating conditions, but periodically inspect the case for a sign

MAINTENANCE (Continued)

of oil leakage between it and the axle. If EXCESSIVE OR CONTINUOUS oil leakage develops around the gear case, have mower inspected by your TORO Service Dealer.

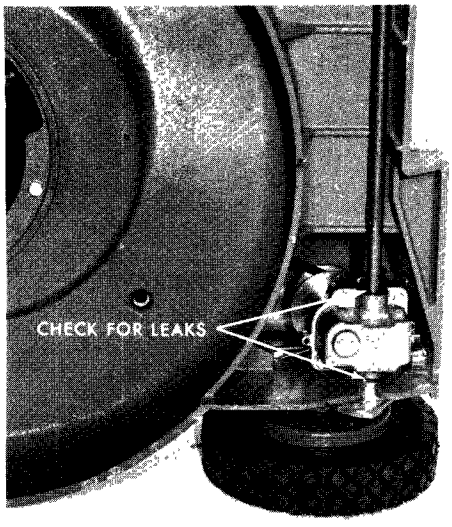


Figure 39



Figure 40

OILING THE WHEELS

Twice a season, raise side of mower and add 2 or 3 drops of oil behind the head of each wheel bolt. Rotate wheel a few times to distribute oil to wheel bearings.

CLEANING ENGINE AIR CLEANER

Your engine is equipped with a polyurethane type serviceable air cleaner. Clean the element every 25 hours of operation or more often when cutting in extremely dusty conditions. To clean the element, proceed as follows:

1. Lift off the snap type cover.
2. Remove polyurethane element.
3. Wash element in detergent and water solution by squeezing, do not twist element. Squeeze out cleaning solution and shake dry. Be sure poly element is dry.
4. Re-oil element by applying a generous quantity (5 teaspoons) of engine oil to sides and open ends. Squeeze to distribute oil and to remove excess oil.
5. Re-install the element and air cleaner cover.
6. NEVER run engine without the polyurethane element or with air cleaner disassembled.



Figure 41

SPECIFICATIONS

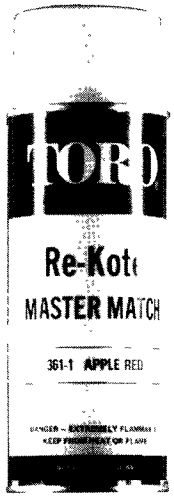
ENGINE SPECIFICATIONS

Bore	2-13/16"
Stroke	1-15/16"
Displacement (cu. in.)	12
Torque (ft.-lbs. max.)	6.25 @ 2200-2500 RPM

TUNE-UP SPECIFICATIONS

	AC	Autolite	Champion
Spark Plug Type	CS-45	A7N	CJ-8
Spark Plug Gap			.030"
Ignition Point Gap			.020"
Intake Valve Clearance			.010"
Exhaust Valve Clearance			.010"

ACCESSORIES



SPRAY PAINT

361-1 APPLE RED

TORO Spray Paint restores the factory finish. Dries in minutes to a glossy finish.

EXTRA BAG

Extra bags may be ordered from your TORO Dealer. Order Part Number ~~23-1130.~~ 6-1389.

OFF-SEASON STORAGE

PREPARING MOWER FOR STORAGE

In the event engine is to be stored for any length of time (30 days or more) or at the end of mowing season, prepare as follows:

1. Drain fuel tank completely. Otherwise, gum deposits will form in the carburetor, fuel line, and tank. This may seriously affect the engine when used next. Run the engine until gas from carburetor bowl is exhausted. (If desired, you may run the engine until the fuel in the tank and carburetor is completely exhausted.)

CAUTION: Drain gas into a container outdoors, away from fire or flame.

2. Drain crankcase oil while engine is warm. Fill the crankcase with fresh oil (see page 6).
3. Remove spark plug. Pour two tablespoons of 10W-40 oil into cylinder. Crank engine several times to allow oil to coat cylinder wall. Replace spark plug. **Do not connect spark plug wire.**
4. Clean dirt and grass clippings from cylinder, cylinder head fins and blower housing.
5. Remove the belt cover. Place speed control lever in SLOW position. Rotate the belt and press the pulley halves together as shown, to expose the shaft. Place 1 or 2 drops of oil on the shaft at the point shown. DO NOT OVER-OIL, OR THE EXCESS MAY GET ON THE BELT. Work the upper pulley half up and down to distribute the oil. Reinstall the belt cover.

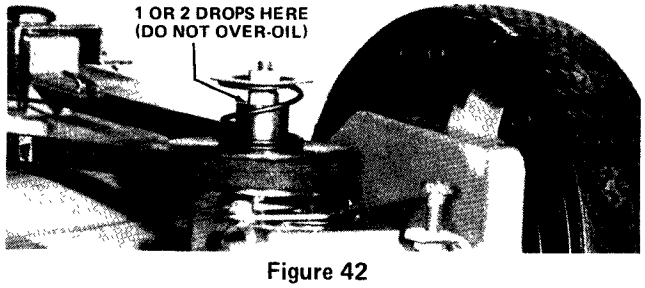


Figure 42

6. The upper handle may be removed from the lower handle and laid forward over the unit to conserve space when storing. Use care to avoid kinking the cables.

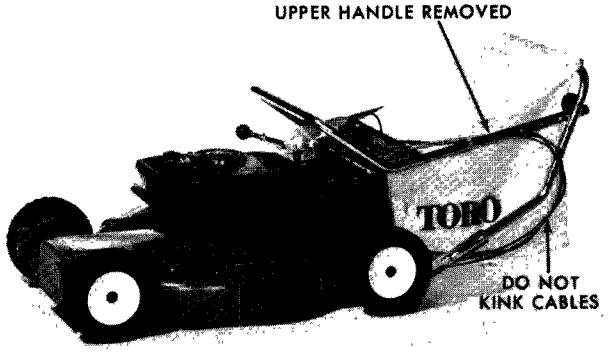


Figure 43

BATTERY STORAGE (FOR KEY-LECTRIC START MODELS ONLY)

During the off season storage, your battery POW-R-PACK may be left on the mower or removed and stored in a separate location. It is recommended that the battery POW-R-PACK be stored in a cool, dry area during off season storage.

Charge the POW-R-PACK for 48 hours before off-season storage. Do not leave POW-R-PACK on charge for over 72 hours.

In the spring (or at the end of the storage period), again charge the POW-R-PACK for 48 hours before putting the mower into service.

If you need to purchase a new battery POW-R-PACK, go to your local TORO Service Dealer. He will have the proper battery to fit your mower.

⚠ DO NOT DISPOSE OF YOUR OLD BATTERY IN A FIRE, AS IT MAY EXPLODE.

MOWING TIPS

SPRING CLEAN UP – First pick up or remove all objects such as rocks, glass, sticks and other items that may cause damage to your lawn mower. Next, set the height-of-cut on your mower to clip off approximately one-half inch of dormant grass. Attach the bagging attachment and use mower to remove and collect winter debris. This may be done two or three weeks before spring growth starts and will promote an early greening lawn.

MOWING SEASON – Use your bagging attachment to catch clippings, weeds, seed heads and other objectionable growth that may develop. Your mower should generally be set to mow at a height of one and one-half inch to two inches height-of-cut. This is satisfactory for most turf grasses and is an optimum height for your Grassmaster. Mow often enough so that approximately one-half of an inch of leaf surface is removed at each cutting. This will promote dense growth which helps to shade out weedy grasses, yet does not remove excessive leaf area which will leave the lawn unsightly until new growth is produced.

FALL MOWING – Continue regular mowing practices as late in the fall as required. Also, during fall mowing your bagging attachment provides an excellent means of collecting leaves. These leaves may be used as a beneficial mulch on shrubs and in gardens or they may be composted for use on these areas next spring.

FERTILIZATION – A complete fertilizer – one that contains nitrogen, phosphorous and potash – should be applied in spring and fall at a rate as recommended by the manufacturer. This, along with other information pertaining to the fertilizer, is always shown on the bag. Nitrogen carrying fertilizers should be used periodically to maintain uniform growth and promote good color.

Generally, the complete fertilizer should contain two or three times as much nitrogen as phosphorous and potash. Most lawns require four to six pounds of nitrogen, two to three pounds of phosphoric acid and two to four pounds of potash per thousand square feet of area per growing season. The nitrogen should be applied in at least three or four applications.

WATERING – Correct watering is most important to assure a well groomed lawn of healthy turf grass and can be substantially simplified by the installation of an automatic underground system. Too much or too little water may be more beneficial to crabgrass or other annual weeds than to the permanent turf grass. Water should be applied when about fifty percent of the available water has been exhausted. At this time, the lawn should be watered until subsoil and surface moisture meet. Soils differ in their ability to absorb moisture and water should not be applied in excess of that which can be absorbed. Correct watering procedures should be followed during all growing seasons.

CULTIVATING – Mechanical cultivation, or aeration, may be necessary to alleviate soil compaction. This type of cultivation will provide better water and fertilizer penetration and permit the development of deeper turf grass roots. Lawns should be aerated when the grass is actively growing. In general, northern cool season grasses may be aerated in the spring or early fall, while Bermuda and other warm season grasses may be aerated during the late spring, summer, and early fall.

WEED, DISEASE AND INSECT CONTROL – Chemicals are available for controlling most weeds, insects and diseases. Specific chemicals should be purchased at local lawn and garden supply centers. They should be applied as recommended by the manufacturer as per their directions on the package. However, it is well to remember that weeds invade turf only when it is weak. Weed control chemicals must be considered as an aid only, and unless the basic cause of weakened turf which permitted the invasion is corrected, results with chemicals shall not be favorable. Generally, when weeds are removed by chemical means, the turf grass should be immediately fertilized and possibly cultivated.

SEEDING – The preferred time for seeding is in the early fall. However, spring or early summer seeding will be successful if adequate water is available. For established lawns that are thin and unthrifty, seeding may follow aeration and fertilization. It is necessary that the seed be in contact with soil; otherwise, they may fail to germinate or to become established.

TROUBLE SHOOTING CHART

1. Engine fails to crank (turn over) (Key-Lectric start models only)	A. Pow-R-Pack not charged (p. 12). B. Inoperative Starter: Starter gears not properly engaged will prevent the engine from cranking. Open cover, turn the starter cup on the engine in a counterclockwise direction until the gears break free (p. 7). C. Loose electrical connections. Check to see that all connections are secure. D. Make sure house outlet switch is on 115 VAC circuit when charging Pow-R-Pack (P. 12).
2. Engine fails to start	A. Check the fuel tank for gas. Be sure key is ON. B. Throttle control lever not in normal or hi position. C. Do not attempt to start in heavy or high grass but rather on a clean, dry surface (driveway, sidewalk). D. Spark plug wire loose or disconnected. E. Spark plug faulty or improperly gapped (p. 12). F. Cutter blade bolt loose. G. Engine flooded. Remove spark plug, dry the plug, crank engine with plug removed and throttle in "off" position. Replace spark plug and lead wire and resume starting procedures (p. 6). H. Dirty air cleaner (p. 15).
3. Hard starting or loss of power	A. Dirt in gas tank. B. Dirty air cleaner (p. 15). C. Water in fuel supply. D. Vent in gas cap and/or carburetor plugged.
4. Operation erratic	A. Spark plug fouled, faulty or gap too wide (p. 12). B. Dirty air cleaner (p. 15).
5. Occasional skip (hesitates) at high speed	A. Spark plug gap too close (p. 12).
6. Idles poorly	A. Remove any obstruction from air passages in shrouds. B. Clean cooling fins. C. Fill crankcase to proper oil level (p. 5).
7. Engine overheats	A. Spark plug wire loose. B. Cutter blade bolt loose. C. Traction control lever in the engaged position. D. Dirty air cleaner (p. 15).
8. Excessive vibration	A. Cutter blade loose or unbalanced.

MAINTENANCE RECORD

DATE	HOURS USED	OIL CHANGE	AIR CLEANER SERVICE	OIL WHEELS	SHARPEN BLADE	WINTER STORAGE	SPRING SERVICE	SPARK PLUG GAP

PRODUCT CHANGES

In an effort to make improvements available to TORO owners as quickly as possible, minor changes are incorporated into Toro's products from time to time that do not become immediately shown in the Parts Catalog. If such a change apparently has been made in your unit, which is not reflected in your manual, see your TORO distributor or his Authorized TORO Service Dealer for information and part numbers.

THE TORO PROMISE

It is Toro's policy to design and produce TORO products to provide our customers with a high level of performance and durability in normal operation. Our products, however, are produced in high volume, and it is inevitable that occasionally a unit will reach a customer with a defect in materials or workmanship which causes that unit to fall below the normal high level of TORO performance. Invariably, such a defect will be noticed in a residential product within one year, and in an institutional product within ninety days after purchase. Recognizing this possibility, Toro has established a simple guarantee policy and procedure that is intended to assure customer satisfaction. This guarantee statement is as follows:

The Toro Promise

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

Residential products	1 year
Residential products used commercially	45 days
Institutional products	90 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 any institutional product to a TORO distributor.

Should you feel that a product is defective, and wish to rely on The Toro Promise, the following procedure is recommended:

1. Contact any TORO dealer or distributor, but preferably the dealer or distributor from whom you purchased the product.
2. He will instruct you to either return the product to him, or tell you the name and address of your nearest Authorized TORO Service Dealer if the product is to be returned to such dealer.
3. Take the product and your original sales slip, or other evidence of purchase date, to the servicing 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 he performs, we urge you to contact us. Write:

TORO "Customer Care" Department
8111 Lyndale Avenue South
Bloomington, Minnesota 55420

Litho in U.S.A.