



MODEL NO. 58150 - 3000001 & UP

**OPERATOR'S
MANUAL****5 HP REAR TINE TILLER**

FIXED HANDLE

To assure maximum safety, optimum performance, and to gain knowledge of the product, it is essential that you or any other operator of the tiller read and understand the contents of this manual before the engine is ever started. Pay particular attention to the **SAFETY INSTRUCTIONS** highlighted by this safety alert symbol —



The symbol means **CAUTION, WARNING or DANGER** — personal safety instruction. Failure to comply with the instruction may result in personal injury.



PRICE \$1.00

FOREWORD

The TORO Tiller has advanced concepts in engineering, design, and safety. If set-up and maintained properly, the tiller will give long, dependable service.

Since the tiller is a high-quality product, TORO is concerned about the future use of the tiller and safety of the user. Therefore, read this manual carefully to familiarize yourself with the safety instructions and the product before operating the tiller. The seven major sections of the manual are:

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

Note that safety, mechanical, and some general information in the manual is emphasized. The words CAUTION, WARNING, DANGER, IMPORTANT, and NOTE are used to classify the information. CAUTION, WARNING, and DANGER identify safety related information; and NOTE identifies general information worthy of special attention.

OPTIONAL SPARK ARRESTER

In some areas there are local, state or federal regulations requiring that a spark arrester be used on the engine of this tiller. If a spark arrester is required, order from your local Briggs & Stratton dealer.

Notice to customers in the State of California - The engine on this unit is **NOT** equipped with a spark arresting muffler.

WARNING

When tiller is used or operated on any California forest, brush or grass covered land, a working order spark arrester must be attached to muffler. If not, the operator is violating state law, Section 4442 Public Resources Code.

If help - concerning set-up, operation, maintenance, or safety - 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 Tiller all TORO. Buy genuine TORO replacement parts and accessories.

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SAFETY INSTRUCTIONS



This safety alert symbol means **CAUTION, WARNING or DANGER** - "personal safety instruction". Read and understand the instruction because it has to do with safety. Failure to comply with the instruction may result in personal injury.

The following "Instructions for Safe Tilling" are suggested by The Toro Company. Failure to operate the tiller in accordance with these Safety Instructions **MAY RESULT IN PERSONAL INJURY**.

BEFORE OPERATING

1. Read and understand the contents of this manual before starting and operating the tiller. Become familiar with all controls and know how to stop tiller quickly. **NEVER ALLOW CHILDREN TO OPERATE TILLER.**
2. Keep everyone, especially children and pets, away from the area of operation. Remove glass, metal objects, sticks, stones, wire and any other debris that might get caught in or possibly be thrown by the tines.
3. Keep all shields and safety devices in place. If shield, safety device or decal is defective, repair or replace it before operation is commenced. Also tighten any loose nuts, bolts and screws.
4. Wear long pants and substantial shoes while using the tiller. Do not operate tiller while barefoot, wearing sandals, tennis shoes, sneakers or shorts.
5. Fill fuel tank with gasoline before starting the engine. Avoid spilling any gasoline. Since gasoline is highly flammable, handle it carefully.
 - A. Use an approved gasoline container.
 - B. Fill tiller fuel tank outdoors when engine is cool. Engine must not be running to prevent a potential hazard.
 - C. Wipe up any gasoline that may have spilled, and install gasoline container cap and tiller fuel tank cap before starting the engine.

WHILE OPERATING

6. Open doors if engine will be run in the garage because exhaust fumes are dangerous and could possibly be deadly. Do not run engine indoors.

7. Do not operate the tiller if someone is near the area to be tilled.
8. Tilling the soil demands attention. Always maintain secure footing, balance and control.
9. Till the soil when it is dry or moist because wet or sticky soil can cause mechanical damage.
10. Keep face, hands, feet and any other part of the body or clothing away from concealed, moving or rotating parts such as the tines, belts and pulleys. Stay behind the handles and away from the tines while operating the tiller.
11. Release clutch control, shut engine off and wait for all parts to stop before removing any obstruction from the tines. Use a stick to remove the obstruction.
12. If a solid object is hit by the tines or tines get plugged, release clutch control and shut engine off. Remove high tension wire from spark plug; then check for possible damage, an obstruction or loose parts. Use a stick to remove any obstruction, and make all repairs before using the tiller again.
13. Before leaving the operator's position - behind handles - release clutch control and shut engine off. Pull high tension wire off spark plug to prevent possibility of accidental starting.
14. Do not touch the engine while it is running or soon after it is stopped because the engine may be hot enough to cause a burn.

MAINTAINING TILLER

15. Before performing any maintenance or servicing the tiller, shut engine off and pull high tension wire off spark plug to prevent possibility of accidental starting.
16. Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized TORO Service Dealer.
17. Keep tiller in safe operating condition by having nuts, bolts and screws tight.
18. To reduce potential fire hazard, make sure engine and tiller chassis is free of excessive grease, vegetation, dirt and other foreign matter.
19. Do not overspeed the engine by changing governor settings. Recommended engine speed is 3600 rpm. To assure safety and accuracy, have an Authorized TORO Service Dealer check maximum engine speed (3600 rpm) with a tachometer.

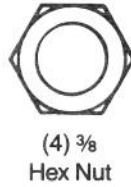
HARDWARE BAG CONTENTS

The items illustrated below are used during the assembly of your Tiller. They are drawn actual size and can be helpful in determining the correct hardware needed in each assembly

step. The quantity of each item is shown in parenthesis. Also included in the hardware bag, but not illustrated here, are (2) Handle Grips.



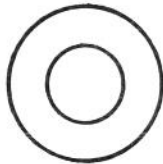
(4)
 $\frac{3}{8}$ x $2\frac{1}{4}$
Hex Hd. Cap Screw



(4) $\frac{3}{8}$
Hex Nut



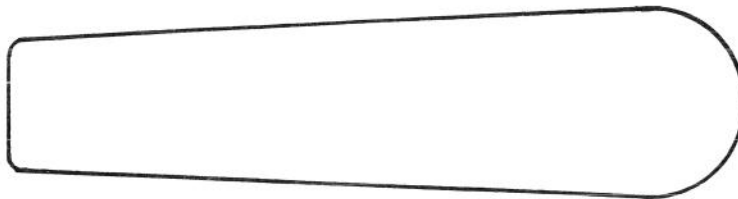
(4) $\frac{3}{8}$
Lock Washer



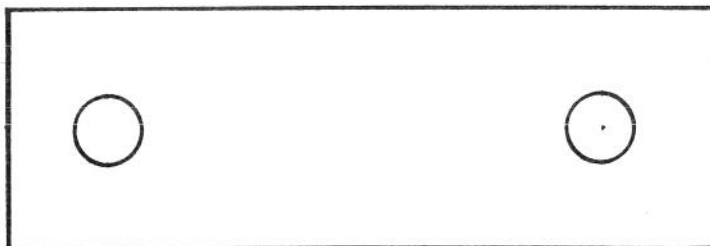
(1) $\frac{3}{8}$ SAE
Flat Washer



(1) Cotter Pin



(1) Control Knob



(2) Spacer Blocks

SET-UP INSTRUCTIONS

This tiller is shipped in one carton completely assembled except for the handle and controls. A hardware bag is also furnished which contains the extra parts and hardware needed to assemble the tiller correctly. **NOTE: Page 4 illustrates the hardware bag contents (drawn actual size).** Use this page for correct identification of hardware items used during assembly.

CUSTOMER NOTICE! The engine on this tiller was shipped without oil in the crankcase. If engine is started before oil is added to the crankcase, engine damage could result. Be sure to read and follow all SET-UP, BEFORE OPERATING and CONTROLS AND OPERATION instructions in this operator's manual.

IMPORTANT!

All items marked with an asterisk (*) can be found in the hardware bag.

1. Remove tiller and all other parts from the shipping carton. **NOTE:** Avoid unnecessary lifting; cut shipping carton open and roll tiller out of carton.
2. Attach the handle to the handle brackets. **NOTE:** Two persons will make attaching the handle noticeably easier.
 - A. Position handle over support brackets as shown in Fig. 1. Insert a spacer block* on each side (between bracket and handle) then slide a $\frac{3}{8}$ x $2\frac{1}{4}$ cap screw* through the bottom hole in handle, spacer block, and bracket. Assemble a $\frac{3}{8}$ lock washer* and $\frac{3}{8}$ hex nut* onto both cap screws but do not fully tighten at this time.
 - B. Choose a high or low handle setting by lining up the top hole on both sides of handle with the desired holes in the bracket (top hole in bracket has 2 positions). **NOTE:** If handle height setting is changed after tiller is completely assembled be sure to check control lever adjustment (see ADJUSTMENTS section).
 - C. Insert the two remaining $\frac{3}{8}$ x $2\frac{1}{4}$ cap screws* through the lined up top holes in handle, spacer blocks, and support bracket. Secure each cap screw with lock washer and $\frac{3}{8}$ hex nut. **At this time tighten all (4) cap screws.**
3. Attach the throttle control to the handle panel, Fig. 2. (Be sure throttle cable is routed below cross brace, as shown in Fig. 1.)

Slide the threaded part of control into slot on the back of handle. Slide the $\frac{3}{8}$ lock washer and $\frac{3}{8}$ hex nut up the control cable and secure control to handle by tightening the hex nut to the control from underside of the slot. (**NOTE:** Lock washer and nut in Fig. 2 are placed on cable at factory.)

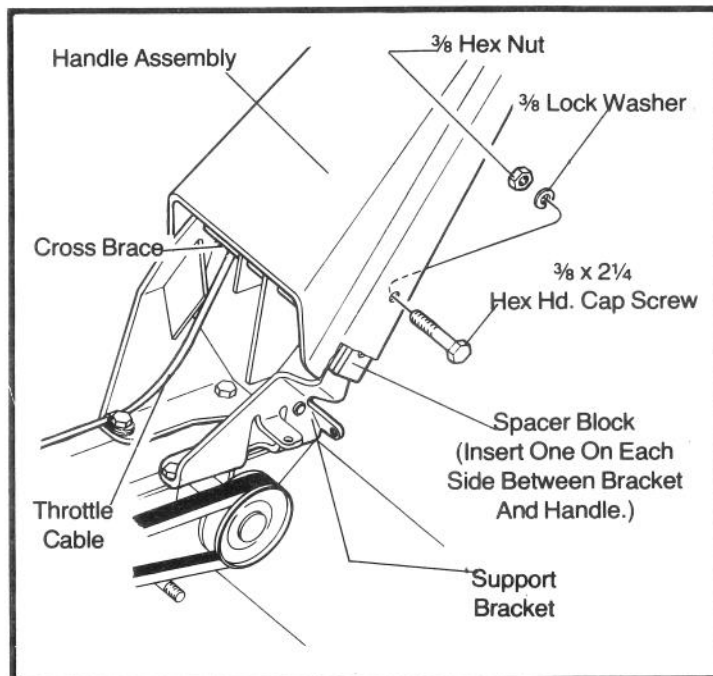


FIGURE 1

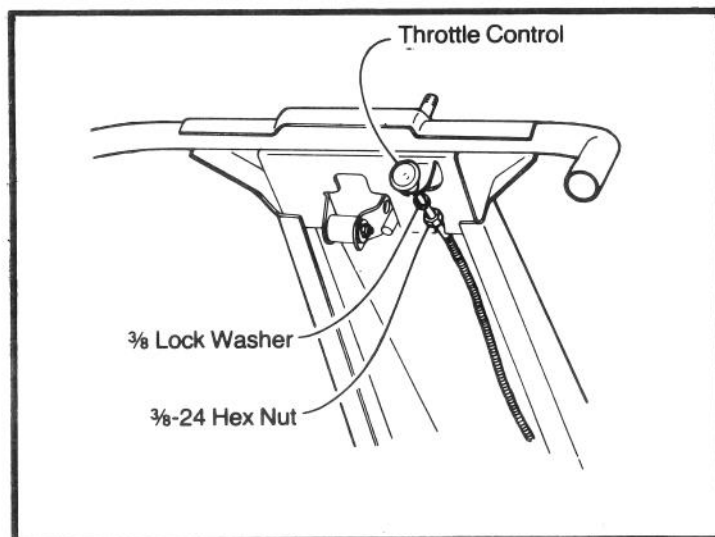


FIGURE 2

SET-UP INSTRUCTIONS

4. Slide handle grips* onto the handle, Fig. 3. If grips will not slip on completely, place a block of wood against grip and tap with hammer until grip is all the way on.
5. Turn the control knob* onto the clutch control lever, Fig. 3.
6. Attach control link to pivot.
 - A. Slide $\frac{3}{8}$ SAE flat washer* onto end of control link, Fig. 4.
 - B. Insert end of control link into hole in pivot and secure with cotter pin*. **NOTE:** Bend back ends of cotter pin as shown in circled illustration.
7. Initial adjustment of the tiller was made at the factory. However, before operation check the control set-up as follows:

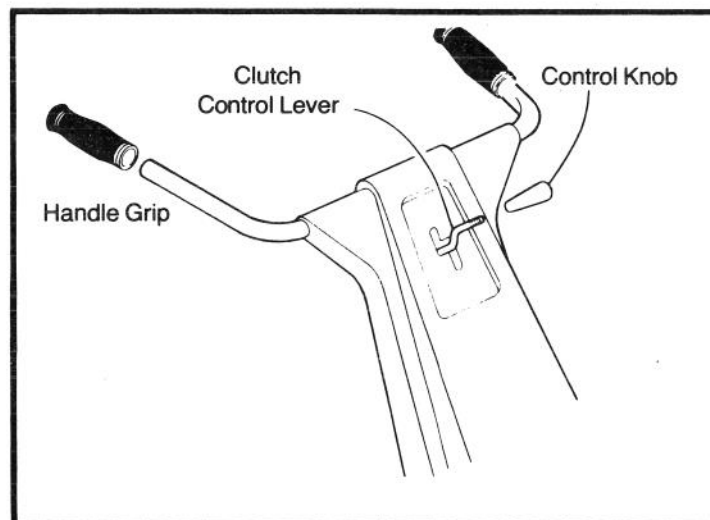


FIGURE 3



CAUTION: Disconnect spark plug wire and push throttle control all the way in to prevent accidental starting.

- A. Move clutch control lever into "FORWARD" position. **Lightly pull back on the lever to remove play in linkage.** Lever should be $\frac{1}{4}$ " from bottom of slot, as shown in Fig. 5. If setting is not correct see "Clutch Control Lever Adjustment" in ADJUSTMENTS section.
- B. Move clutch control lever into "NEUTRAL" position; then pull starter rope slowly. **Wheels and tines should not move.** If wheels or tines move see "Belt Adjustments" in ADJUSTMENTS section.

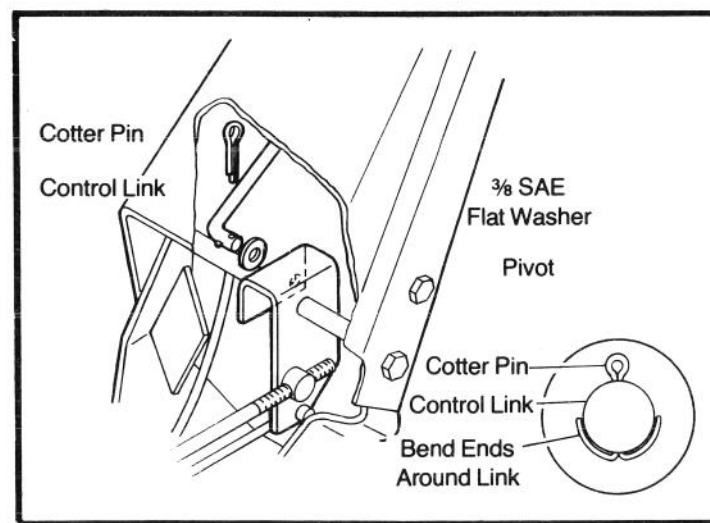


FIGURE 4

BEFORE OPERATING

1. IMPORTANT: FILL CRANKCASE WITH OIL.

Before starting the engine, refer to the ENGINE OPERATING AND MAINTENANCE INSTRUCTIONS. Be certain that the engine crankcase is filled with the proper type oil and that all engine service instructions have been followed completely (see page 13).

2. Fill fuel tank with a clean, fresh, low-lead or leaded "regular" grade of automotive gasoline. **Do not** use "gasohol". **Do not** mix oil with gasoline.

NOTE: The use of "lead-free" gasoline produces fewer combustion deposits, but may shorten valve life if carburetor adjustment is too lean.

3. All nuts and bolts should be checked and tightened during the first two (2) hours of use. Periodic checks should be made thereafter.

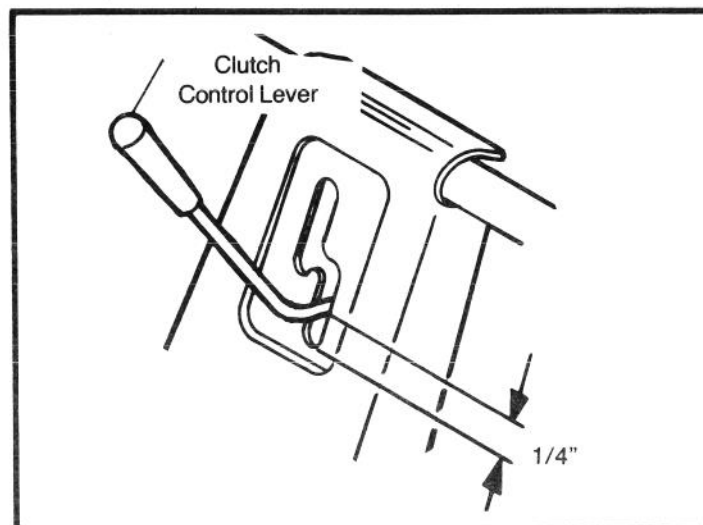


FIGURE 5

CONTROLS

This tiller has the following controls: (Fig. 6)

ON ENGINE

- A. Engine Rewind Starter (See engine section.)
- B. Engine Choke (See engine section.)

ON HANDLE BAR

- A. Clutch Control Lever
- B. Throttle Control and Engine Stop

ON TINE SHIELD

- A. Depth Control Lever

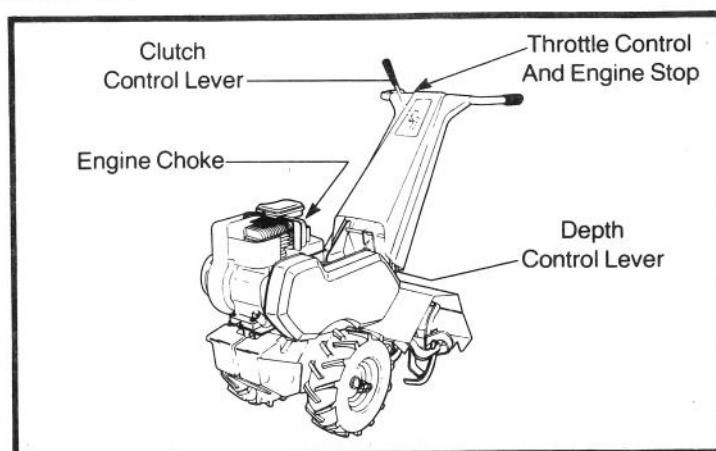


FIGURE 6

"FREE WHEEL" CONTROL

This control enables you to push the tiller easily. To "Free Wheel", pull klik pin out of wheel hub and axle and insert pin into the outer hole of the axle. **NOTE: Be sure the klik pins are replaced through the wheel hubs and inner holes on axle before operating tiller, see Fig. 6A.**

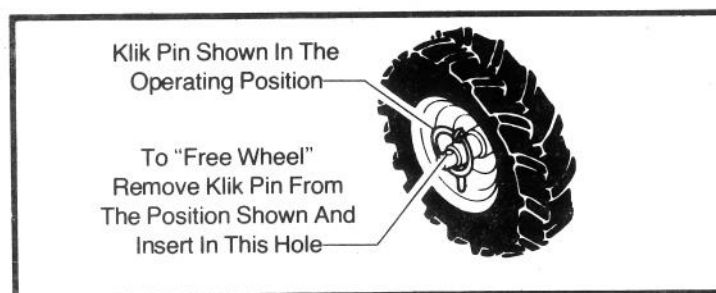


FIGURE 6A

CLUTCH CONTROL LEVER

The clutch control lever, Fig. 6, is a single lever that engages and disengages drive to both the tines and the wheels.

Moving control to the forward position engages the drive to both the tines and the wheels at a tilling speed. **CAUTION:** Before placing lever in forward, be certain depth control setting is correct for soil conditions (see "Depth Control Lever").

Pulling back on clutch control lever from forward drive to neutral disengages the drive to the tines and wheels. Further pulling back on the lever engages the reverse drive to the wheels and the tiller moves backwards at transport speed. (Tines do not rotate in reverse.) When released, the control lever will return from reverse to the neutral position.

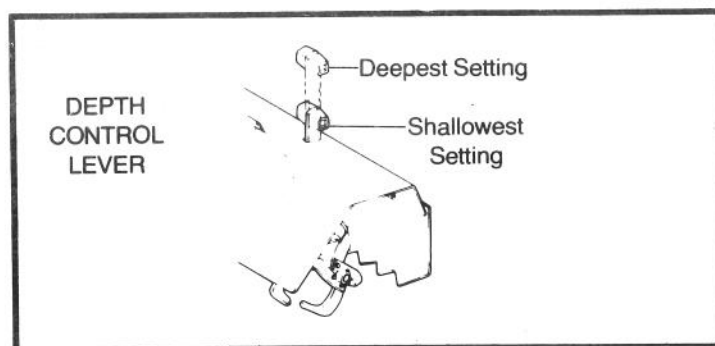


FIGURE 7

THROTTLE CONTROL AND ENGINE STOP

This control regulates the engine speed from idle to fast and also stops the engine. It is located on the right side of the handle panel (Fig. 6). To idle engine push throttle control in. To increase speed pull throttle control out. To stop engine push throttle control all the way in.

DEPTH CONTROL LEVER



CAUTION: Do not adjust tilling depth with the tines rotating. Place clutch control lever in the neutral position before making adjustments of depth control.

The depth control lever is the "key" to easy tilling operation. The exact setting of the control will vary with soil conditions.

When starting a tilling operation, start with the depth control lever in the shallowest setting (Fig. 7). As you become acquainted with the soil, keep raising the control lever so that deeper tilling can be done.



CAUTION: If depth control lever is raised too high, the tines will propel the tiller forward pushing the drive wheels along the ground at an uncontrolled speed.

When starting to till unworked soil or sod, start in the shallowest setting of the depth control lever and raise the depth control one notch at a time until you arrive at a satisfactory location of the lever so that the deepest tilling can be done without having uncontrolled forward speed.

OPERATING INSTRUCTIONS

When you start to till in the garden, remember to take it easy. Do not try to take too deep a cut in a pass through sod or hard ground, or soil that has not been tilled for several months or years.

Do not lean on the handle bars because this takes weight off the front wheels, reduces traction, and causes the tines to attempt to propel the tiller instead of just digging.

There are several schools of thought as to the best method to till. It is suggested you try the various methods and select the one you are most comfortable with to get the results you desire.

- A. On each succeeding pass, overlap one-half of the previous pass.
- B. On the second pass, leave a 1/2 width untilled and till this width on the third pass. Repeat on the fourth pass, leaving a 1/2 width untilled and on the fifth pass, till the untilled strip.
- C. Use A or B and repeat at 90 degrees.

Remember the key to easy tilling is the depth control setting. Do not try to take too deep a cut in harder soils.

STARTING THE TILLER

Now that you have located the controls and understand their operation and function, it is time to start your tiller.

1. Move tiller to suitable ground.
2. Set depth control to desired position.
3. Place clutch control lever in neutral.
4. Pull throttle control out to fast position.
5. Adjust engine choke to proper position. (Refer to engine starting procedures in engine section.)
6. Start engine by pulling starter cord.
7. Run tiller in forward and reverse to be certain tiller operates correctly.

To Stop Engine

1. Place clutch control lever in neutral position.
2. Push throttle control all the way in to the stop position.

MAINTENANCE

ADJUSTMENTS



CAUTION: Never attempt to make adjustments on the tiller while the engine is running. Always stop the engine and disconnect the wire from the spark plug before attempting to make adjustments. Also, be sure the throttle control is pushed all the way in.

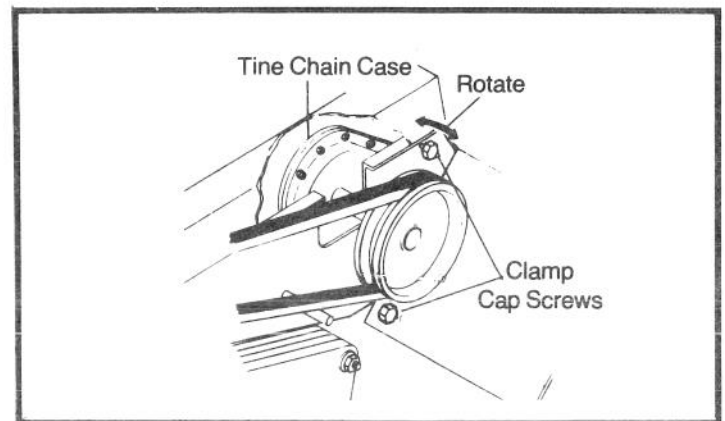


FIGURE 8

BELT ADJUSTMENTS

TINE DRIVE BELT

The tine drive belt, which is the outer belt, is adjusted by loosening the clamp cap screws (Fig. 8) and rotating the entire case and tine assembly. Rotate case forward to slacken belt and back to tighten belt. With the clutch control lever in the forward drive position, the distance between the inside of the belt should be approximately 3/4 inch as shown in Fig. 9. Tighten the clamp bolts securely after adjustment. Place depth control in shallowest setting and start engine. With control lever in neutral position, tines should not rotate. If tines rotate, readjust to increase belt slack until tines do not drive in neutral.

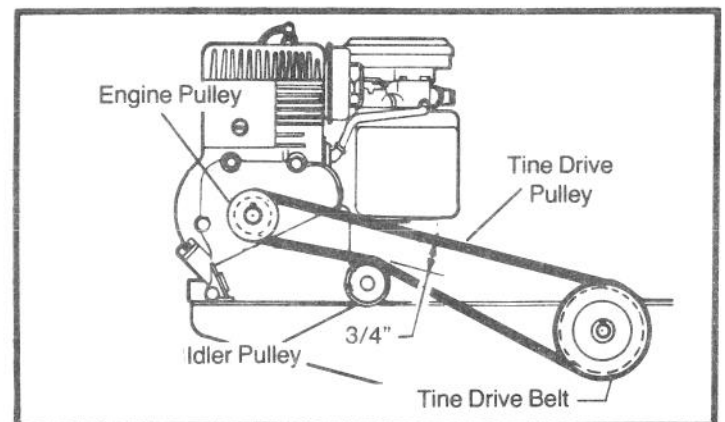


FIGURE 9

MAINTENANCE

WHEEL DRIVE BELT

The wheel drive belt, which is the inner belt, is adjusted by moving the adjustment idler (Fig. 10). With the clutch control lever in the neutral position, pull belt up on both sides of upper idler. There should be approximately $\frac{1}{4}$ inch between the upper idler and the belt (Fig. 10). The adjustment idler should be positioned to obtain this $\frac{1}{4}$ inch. Moving idler up will increase clearance and down will decrease clearance.

NOTE: The adjustment idler has four locations and is not slot mounted. The machine screw must be removed from the mounting frame when making this adjustment.

NOTE: Belt is correctly mounted when turned inside-out (wide side of belt against wheel drive pulley).

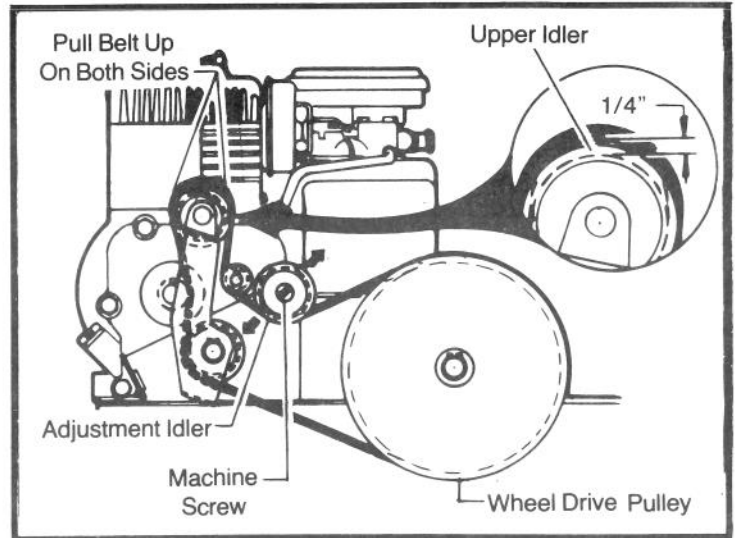


FIGURE 10

CLUTCH CONTROL LEVER ADJUSTMENT

The clutch control lever is pre-set at the factory. Adjustments can be made, however, should it become necessary due to wear or loosened connecting hardware. Check the following and adjust if necessary:

- A. The stop collar should be tight and approximately $2\frac{3}{4}$ " from the end of the tine drive link, Fig. 11. If collar has loosened or is not set correctly, readjust to the $2\frac{3}{4}$ " dimension and retighten setscrew.

IMPORTANT: If it was necessary to adjust collar - check "Tine Drive Belt" adjustment (in this section) and adjust if required.

- B. Move clutch control lever into "FORWARD" position. **Lightly pull back on the lever to remove play in linkage.** Lever should now be $\frac{1}{4}$ " from bottom of slot, Fig. 12. If lever position is not correct remove spring clip from upper trunnion, Fig. 11, and pull trunnion out of pivot.

To raise lever: turn trunnion clockwise - further onto wheel drive link.

To lower lever: turn trunnion counterclockwise.

Reinsert trunnion into pivot and secure with spring clip. Recheck $\frac{1}{4}$ " dimension as shown in Fig. 12.

Pull the clutch control lever into reverse. If the lever hits the shroud and you do not have reverse, refer to Fig. 10. Move the adjustment idler down one notch and repeat the "Clutch Control Lever Adjustment".

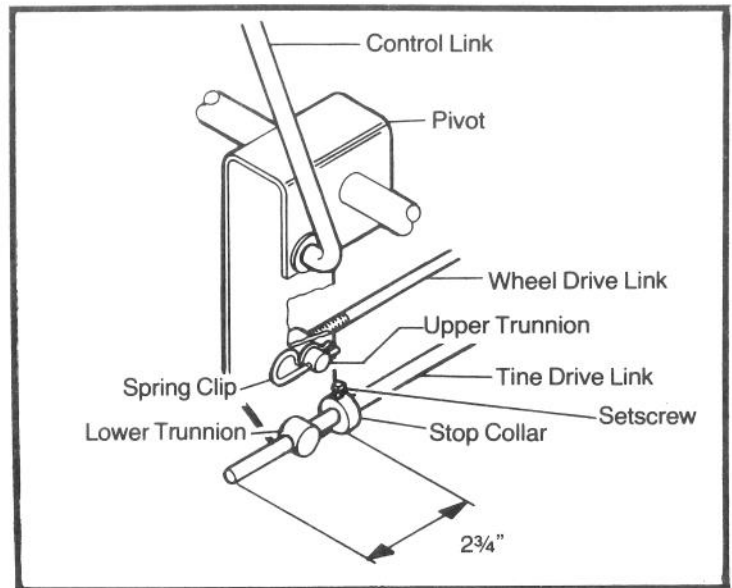


FIGURE 11

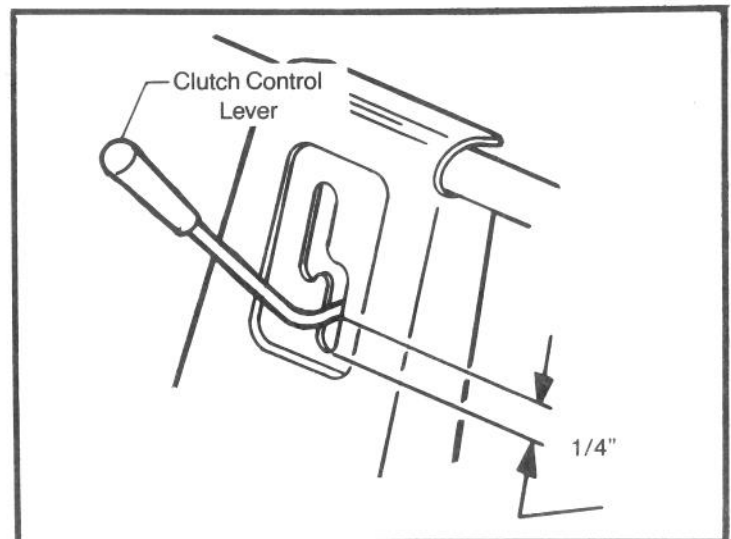


FIGURE 12

MAINTENANCE

LUBRICATION

The best assurance you have of getting the most dependable service from your tiller is to keep the unit clean, free of rust, and well lubricated. Check bolts often to be sure they are kept tight. When the tiller is not being used, it should be stored in a dry place out of the weather.

1. **Engine:** Refer to engine operating instructions and requirements for all engine lubrication.
2. **Chain Cases:** Both the wheel drive and the tine drive cases are amply filled with lubricant and should not require additional lubrication. If a leak develops, add lead base (EP) SAE 140 heavy duty oil as required to bring to proper oil level. Check oil level every 25 hours.

The following procedure should be followed to check lubricant level of cases. When checking cases, do not drain excess lubricant out of the cases.

WHEEL DRIVE CASE

To check the oil level of the wheel drive case, place the depth control lever down to the shallowest setting (Fig. 7). Remove the inspection plug on the right side of the wheel drive case (Fig. 13). Case has sufficient oil if oil is up to bottom of inspection plug hole. **NOTE:** Block tiller in a level position and remove the right wheel when checking this level. Use a socket with extension to reach through hole in counter weight to oil level and fill plug.

TINE DRIVE CASE

To check the lubrication level of the tine drive case:

- A. Set depth control at the deepest setting (Fig. 7).
- B. Place tiller on a level surface so that the tines and the wheels are setting on the ground.
- C. Wipe dirt away from oil level plug and remove plug, Fig. 14A. Oil should be up to the bottom of hole.
- D. If oil isn't up to bottom of hole, wipe dirt away from oil fill plug and remove, Fig. 14B. Fill slowly with lead base (EP) SAE 140 heavy duty oil until proper level is reached. Replace oil level plug and oil fill plug. Wipe off excess oil.

To add lubricant to either chain case it is necessary to tip tiller on its left side to expose level plugs of each case. Add sufficient lead base (EP) SAE 140 heavy duty oil to bring to proper oil level.

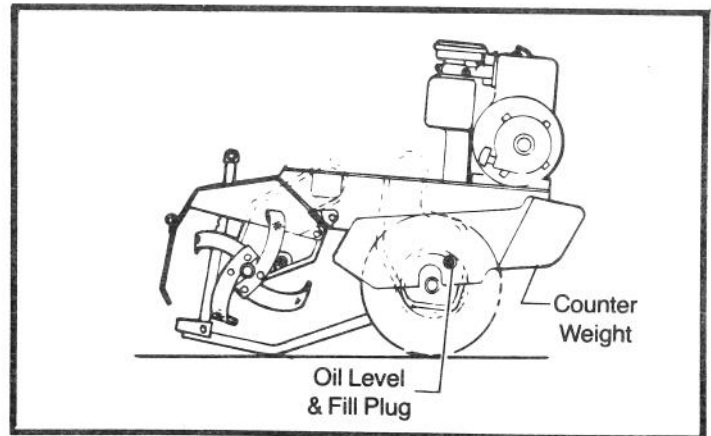


FIGURE 13

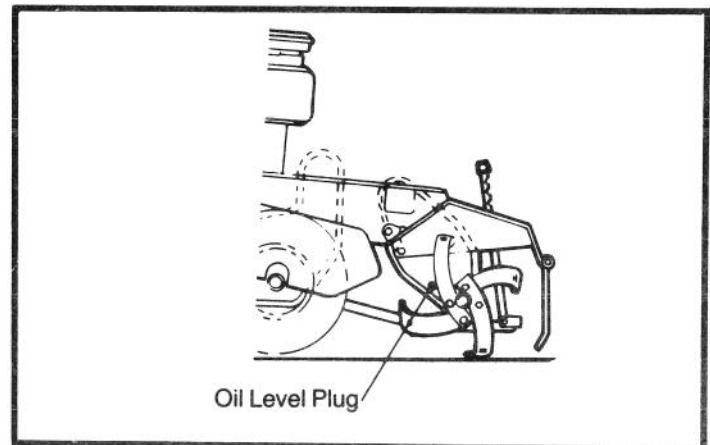


FIGURE 14A

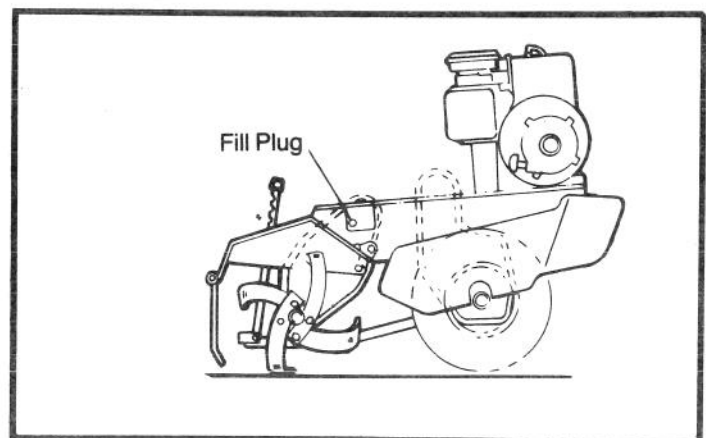


FIGURE 14B

MAINTENANCE

3. The following points should be lubricated with engine oil every eight hours (see Fig. 15). Before oiling attempt to clean off area to be lubricated.

IMPORTANT: Apply oil and grease carefully and only where required. Oil or grease on drive belts or pulleys will cause slippage and loss of drive. Wipe up all spills or excess oil and grease completely.

- A. The control rod swivels (trunnions).
- B. Clutch control lever pivot.
- C. Tine drive bellcrank pivot.
- D. Tine drive link (Fig. 15).
- E. General - Apply oil to all pivot points and linkages to reduce wear and assure free movement. Be sure linkages are clean before applying oil.

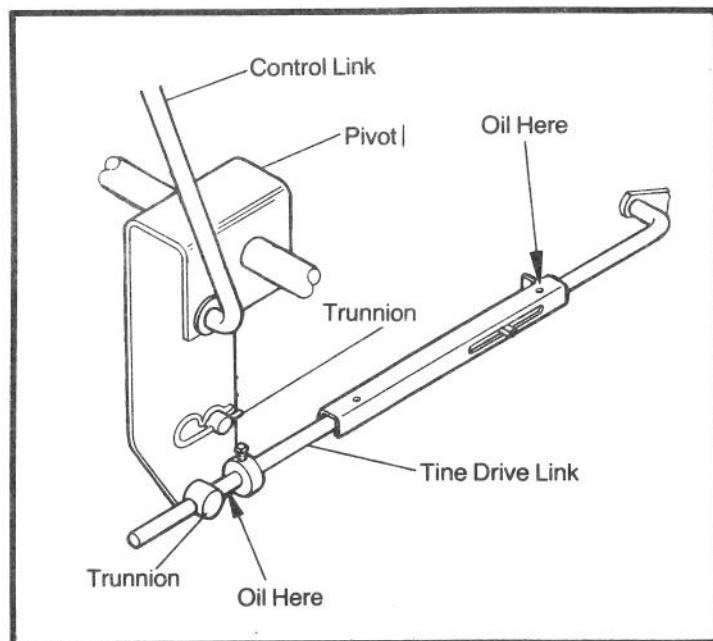


FIGURE 15

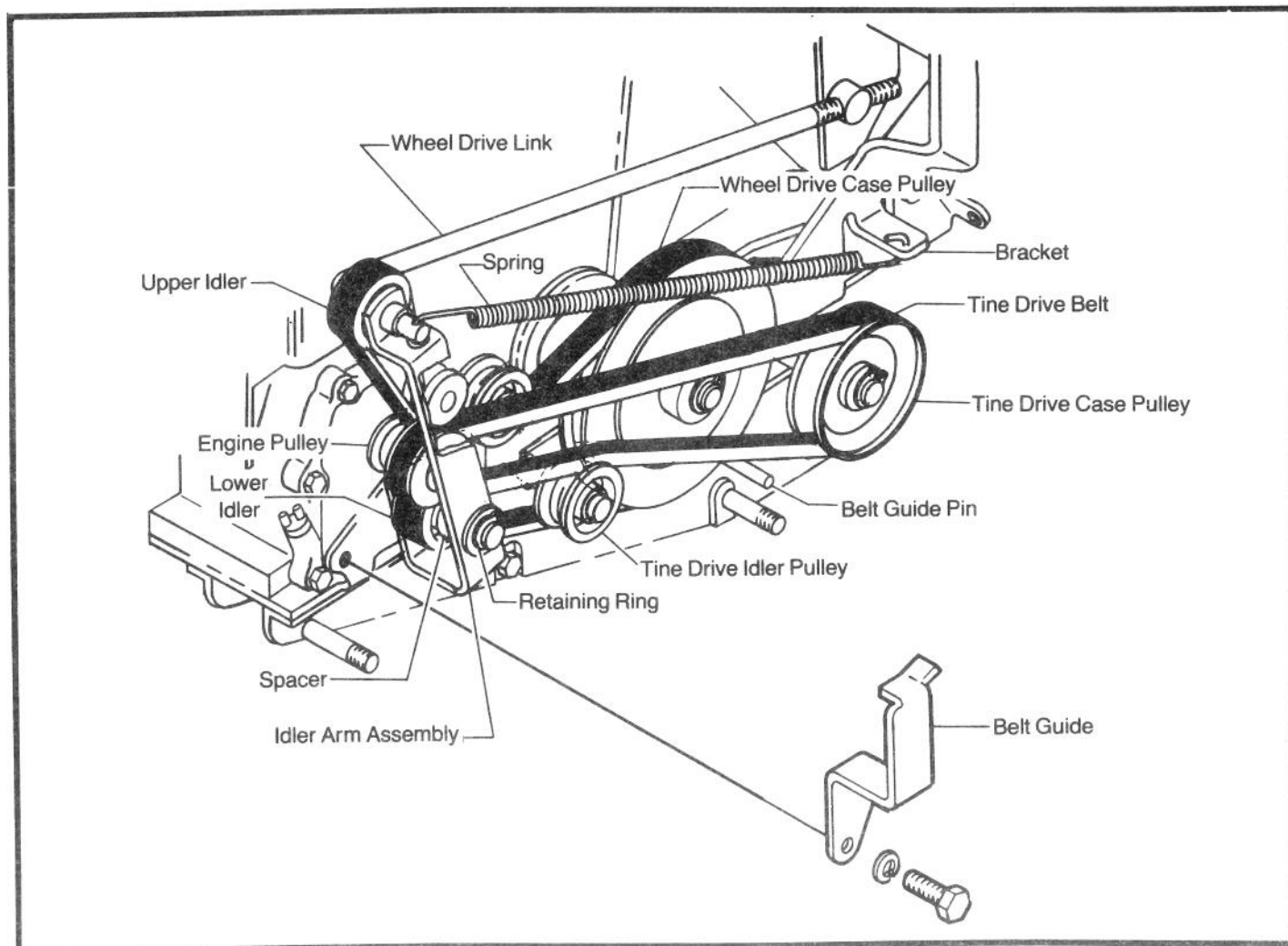


FIGURE 16

MAINTENANCE

BELT REPLACEMENT

The belts on this tiller were specifically designed and engineered to provide long, trouble-free service. If belt replacement is required, order belt from your TORO dealer, to be sure you have a belt that will provide the life and service required.

TINE DRIVE BELT

1. Place the clutch lever in the neutral position.
2. Remove the belt guard.
3. Remove the belt guide (Fig. 16).
4. Slip the belt off the tine drive case pulley.
5. Remove belt from the engine pulley and slip out between engine pulley and idler arm.
6. To replace belt, reverse above procedure. Be sure belt is on top of tine drive idler pulley and the belt guide pin near the tine drive case pulley (Fig. 16).
7. Readjust belt as outlined under BELT ADJUSTMENTS - "Tine Drive Belt".
8. Replace the belt guard.

WHEEL DRIVE BELT

1. Remove the tine drive belt per instructions above.
2. Unhook spring from bracket and wheel drive link, Fig. 16.
3. Remove the retaining ring in the idler arm shaft.
4. Remove the belt from the wheel drive case pulley.
5. Slide idler arm assembly out only until the spacer can slide out between the lower idler and idler arm, and wheel drive link can be pulled out of upper idler.
6. Remove belt and replace with new belt by reversing the above procedure. **Be sure belt is turned inside out** (wide side against wheel drive case pulley). See Fig. 10 and Fig. 16 for belt routing.
7. Readjust belt as outlined under BELT ADJUSTMENTS - "Wheel Drive Belt".
8. Replace the belt guard.

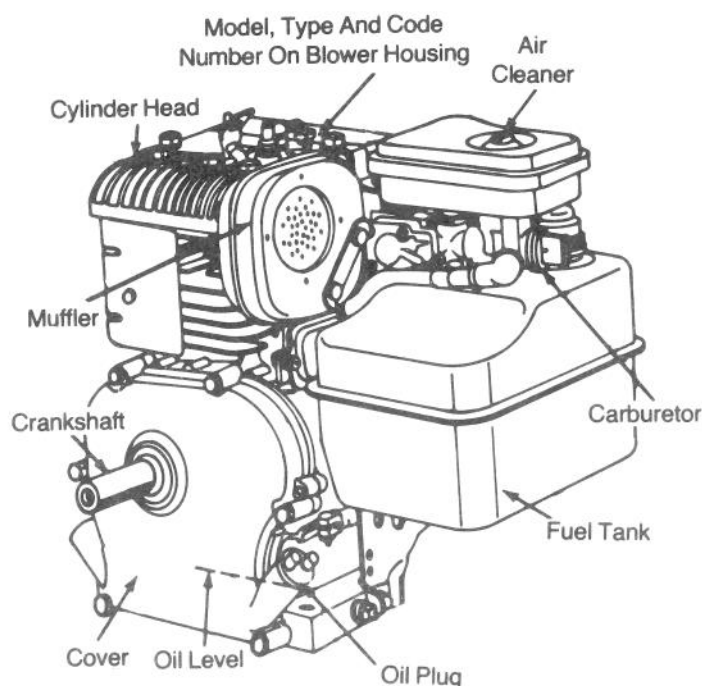
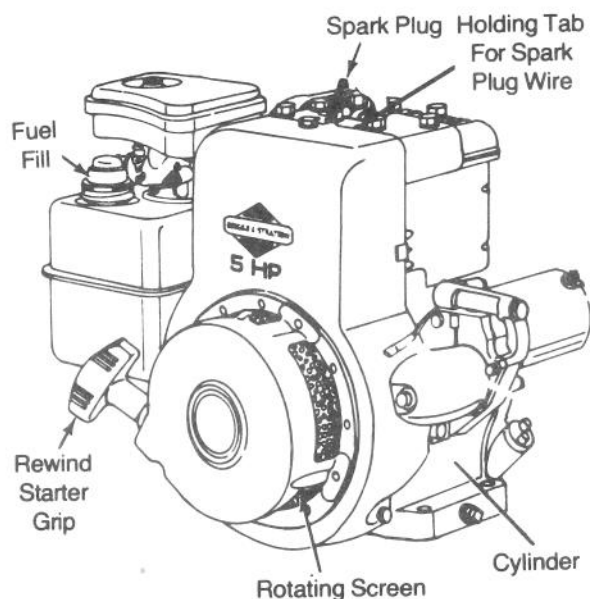
STORAGE

For short term storage, clean the tiller off and store in a dry place.

If tiller is not to be used for an extended period of time, service tiller completely and store it in a dry place.

1. Refer to the engine instructions for engine storage instructions.
2. Drain gasoline from fuel tank.
3. Run engine until it stops.
4. Cover exposed metal surfaces with a thin coat of engine oil.
5. Lubricate per instructions in LUBRICATION section.
6. Before using the tiller again, check all lubrication points, fill fuel tank, and review safety and operating instructions in this operator's manual.

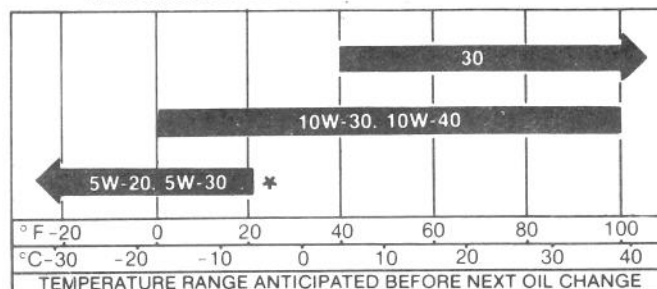
ENGINE OPERATING AND MAINTENANCE INSTRUCTIONS



BEFORE STARTING

Use a high quality detergent oil classified "For Service SF, SE, SD or SC." Detergent oils keep the engine cleaner and retard the formation of gum and varnish deposits. Nothing should be added to the recommended oil.

RECOMMENDED SAE VISCOSITY GRADES

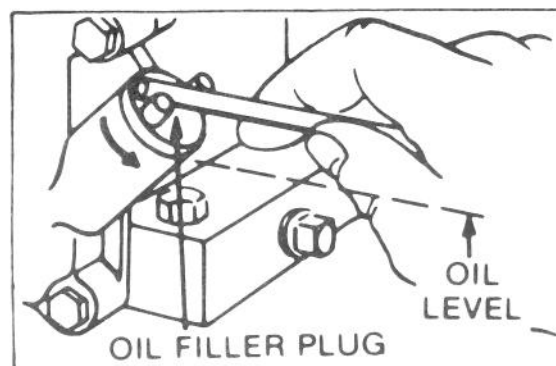


* If not available, a synthetic oil may be used having 5W-20, 5W-30 or 5W-40 viscosity.

TO FILL CRANKCASE WITH OIL

Place engine level. Clean area around oil fill before removing oil fill plug.

OIL FILL PLUG Remove oil fill plug. Fill crankcase to point of overflowing. **POUR SLOWLY.** Capacity approximately 1¼ pints (0.59 liters). Replace oil fill plug.



FILL FUEL TANK

Use clean, fresh, "regular grade leaded, low-lead or lead-free" gasoline. DO NOT MIX OIL WITH GASOLINE.

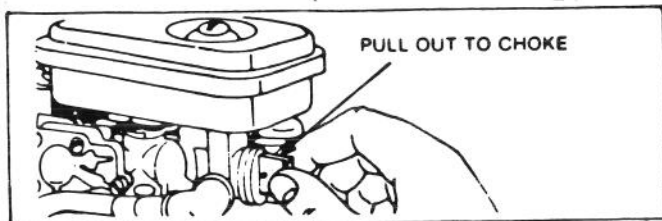
NOTE: The use of "lead-free" gasoline produces fewer combustion deposits, but may shorten valve life if carburetor adjustment is too lean.

ENGINE OPERATING AND MAINTENANCE INSTRUCTIONS

STARTING

Start, store and fuel engine in a level position.

CHOKE ENGINE - Pull choke out as illustrated.

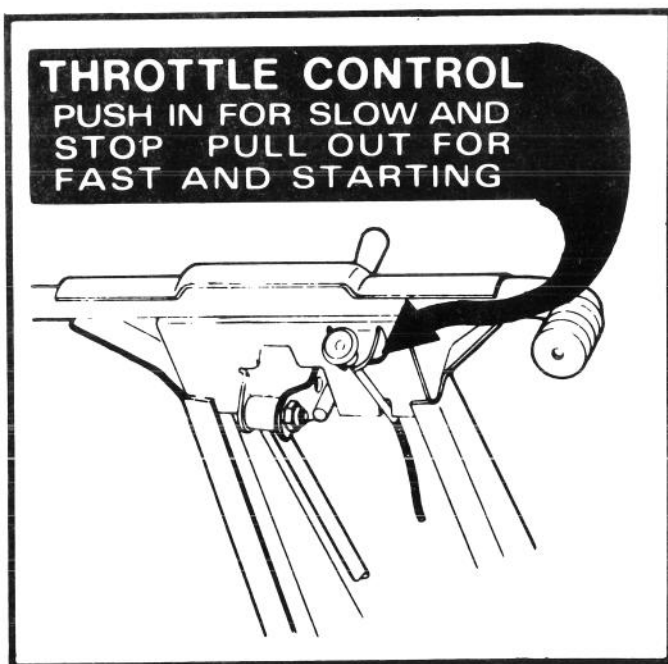


CAUTION: DO NOT operate engine with lever in partial choke position. Excessive speeds may occur.

NOTE: A warm engine requires less choking than a cold engine.

NOTE: Engine may not start if controls on powered equipment do not close choke fully. See ADJUSTMENT section.

THROTTLE CONTROL: Pull throttle control all the way out.

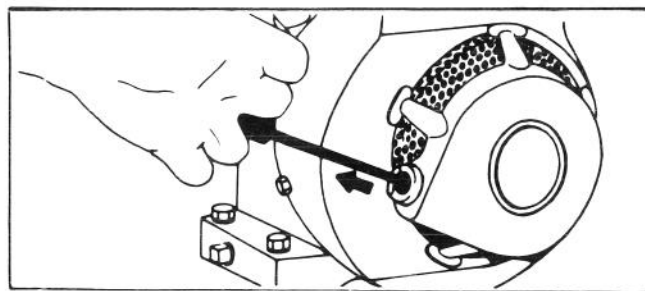


TO START ENGINE



DANGER: ALWAYS KEEP HANDS AND FEET CLEAR OF ROTATING MACHINERY.

Rewind Starter. Grasp starter handle as illustrated and pull out cord rapidly to overcome compression and prevent kick-back. Repeat if necessary with choke opened slightly. When engine starts, open choke gradually.



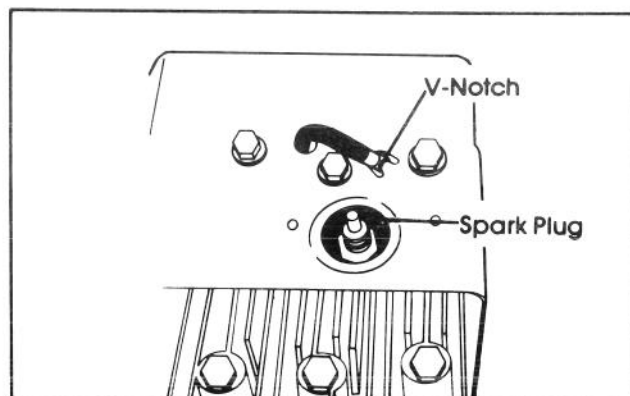
TO STOP ENGINE

Move throttle control to "STOP" position (push all the way in).

MAINTENANCE



WARNING: TO PREVENT ACCIDENTAL STARTING when servicing the engine or equipment, always remove the spark plug or wire from the spark plug and insert in v-notch.

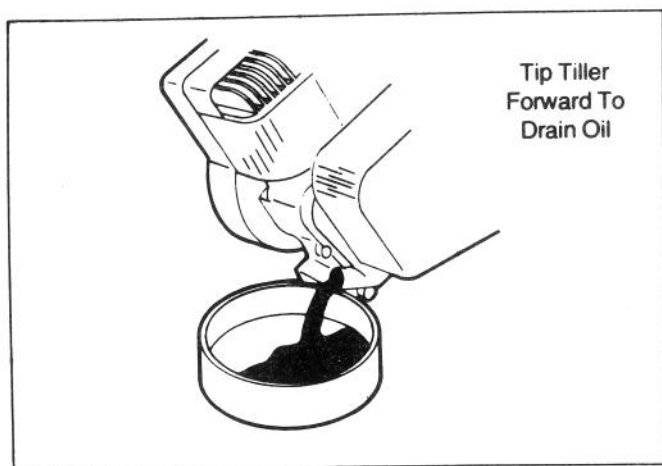
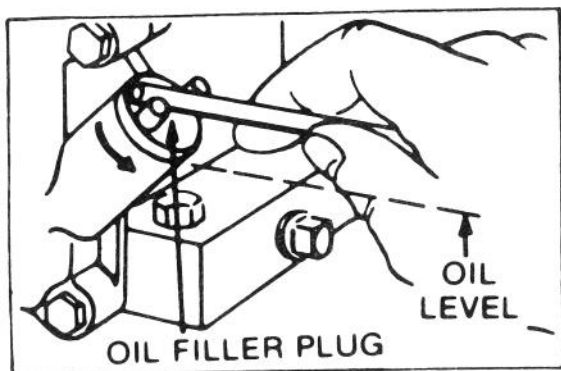


CHECK OIL LEVEL regularly - after each five hours of operation. BE SURE OIL LEVEL IS MAINTAINED.

CHANGE OIL after first five hours of operation. Thereafter change every 25 hours of operation. Drain oil while engine is **warm**, as follows:

1. Clean area around oil fill plug.
2. Drain gasoline from fuel tank.
3. Carefully tip tiller forward until it is resting on the counter weights.
4. Place oil pan directly under opening; remove oil plug and allow oil to drain completely.
5. Lower tiller to level position and refill with new oil of proper grade (see oil chart in BEFORE STARTING section).
6. Wipe up any spilled or excess oil and replace oil fill plug.

ENGINE OPERATING AND MAINTENANCE INSTRUCTIONS



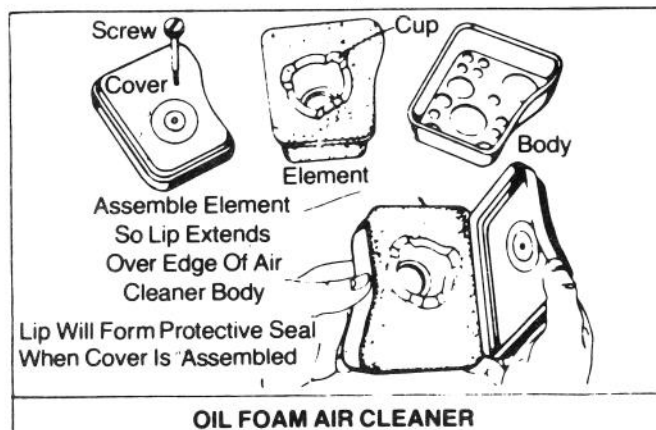
Tip Tiller
Forward To
Drain Oil

TO SERVICE AIR CLEANER "Oil Foam" Air Cleaner

Clean and re-oil foam element at three month intervals or every 25 hours, whichever occurs first.

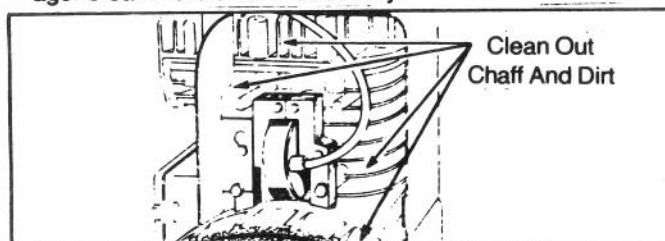
NOTE: Service air cleaner more often under dusty conditions.

1. Remove screw.
2. Remove air cleaner carefully to prevent dirt from entering carburetor.
3. Take air cleaner apart and clean.
 - a. WASH foam element in kerosene or liquid detergent and water to remove dirt.
 - b. Wrap foam in cloth and squeeze dry.
 - c. **Saturate foam with engine oil.** Squeeze to remove excess oil.
4. Reassemble parts and fasten to carburetor securely with screw.



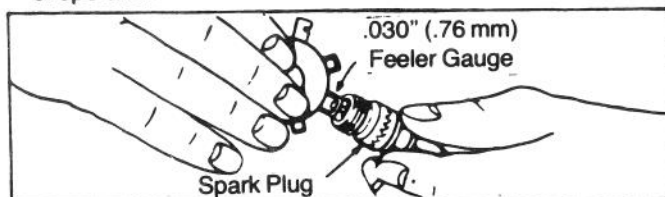
OIL FOAM AIR CLEANER

CLEAN COOLING SYSTEM - Grass, chaff or dirt may clog the rotating screen and the air cooling system, especially after prolonged service. Yearly or every 100 hours, whichever occurs first, remove the blower housing and clean the areas shown to avoid overspeeding, overheating and engine damage. Clean more often if necessary.



DANGER: Periodically clean muffler area to remove all grass, dirt and combustible debris.

SPARK PLUG - Clean and reset gap at .030" every 100 hours of operation.



CAUTION: Do not blast clean spark plug. Spark plug should be cleaned by scraping or wire brushing and washing with a commercial solvent.

Sparking can occur if wire terminal does not fit firmly on spark plug, or if stop switch vibrates against spark plug. Reform terminal or repair switch if necessary.

REMOVE COMBUSTION DEPOSITS every 100-300 hours of operation. Remove cylinder head and cylinder head shield. Scrape and wire brush the combustion deposits from cylinder, cylinder head, top of piston and around valves. Use a soft brush to remove deposits. Re-assemble gasket, cylinder head and cylinder head shield. Turn screws down finger tight with the three longer screws around the exhaust valve, if so equipped. Torque cylinder head screws in a staggered sequence to 140 inch pounds (15.82 Nm).

SPARK ARRESTER EQUIPPED MUFFLER - If engine muffler is equipped with spark arrester screen assembly, remove every 50 hours for cleaning and inspection. Replace if damaged.

CLEAN ENGINE - Remove dirt and debris with a cloth or brush. Cleaning with a forceful spray of water is not recommended as water could contaminate the fuel system.

ENGINE OPERATING AND MAINTENANCE INSTRUCTIONS

ADJUSTMENTS

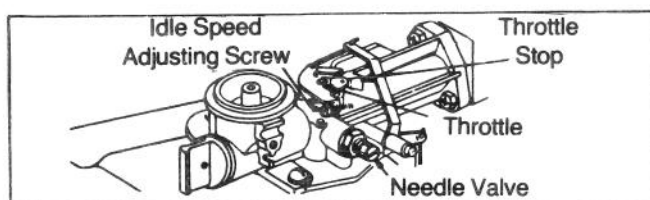
CARBURETOR ADJUSTMENTS

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude or load.

NOTE: The air cleaner must be assembled to carburetor when running engine.

TO ADJUST CARBURETOR — Gently turn needle valve clockwise until it **just** closes. Valve may be damaged by turning it in too far.

Next, open the needle valve 1½ turns counterclockwise. This initial adjustment will permit the engine to be started and warmed up (approximately 5 minutes) prior to final adjustment.



FINAL ADJUSTMENT

Place speed control lever in "FAST" position. Turn needle valve in until engine slows (clockwise - lean mixture). Then turn it out past smooth operating point until engine runs unevenly (rich mixture). Now turn needle valve to the midpoint between rich and lean so the engine runs smoothly. Next, adjust idle RPM. Rotate throttle counterclockwise and hold against stop. Adjust idle speed adjusting screw to obtain 1750 RPM. Release throttle - engine should accelerate without hesitation or sputtering. If engine does not accelerate properly, the carburetor should be re-adjusted, usually to a slightly richer mixture.

CONTROL ADJUSTMENTS

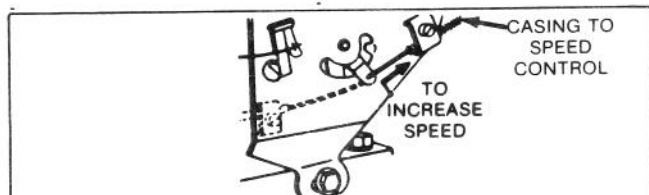
Proper choke and speed control operation is dependent upon proper adjustment of speed controls on the powered equipment.

SPEED CONTROL ADJUSTMENT

The acceptable operating speed range is 1800 to 3600 RPM. Idle speed is 1750 RPM. **DO NOT EXCEED 3600 RPM.**

SPEED CONTROL

Controls on powered equipment should move governor speed control lever in direction illustrated to increase speed. Casing from speed controls may be connected to engine at points indicated. Wire travel is shown by arrows.



GENERAL INFORMATION

These engines are single-cylinder L-head, air-cooled type.

MODEL SERIES 130200 to 131299

Bore 2-9/16" (65.09 mm)
Stroke 2-7/16" (61.91 mm)
Displacement 12.57 cu. in. (206.0 cc)
Horsepower 5.0 Max. @ 3600 RPM
Torque (Ft. Lbs.) 7.66 Max. @ 3000 RPM

The horsepower ratings listed are established in accordance with the Society of Automotive Engineers Test Code - J607. For practical operation, the horsepower should not exceed 85% of this rating. Engine power will decrease 3½% for each 1,000 feet (304.8 m) above sea level and 1% for each 10° above 60° F (16° C).

In some areas, local law requires the use of a resistor spark plug so as to suppress ignition signals. If an engine was originally equipped with a resistor spark plug, be sure to use the same type of spark plug for replacement.

TUNE-UP SPECIFICATIONS

Spark Plug Type	Champion	Autolite	Robert Bosch
Short Plug	CJ-8	235	WS9E
Long Plug	J-8	295	--
Resistor Short Plug	RCJ-8	245	WSR9E
Resistor Long Plug	RJ-8	306	--

Spark Plug Gap030" (.76 mm)
Ignition Point Gap
(Model 130200 Series Only)020" (.51 mm)
Intake Valve Clearance005" - .007" (.13 - .18 mm)
Exhaust Valve Clearance009" - .011" (.23 - .28 mm)

STORAGE INSTRUCTIONS

Engines to be stored over 30 days should be completely drained of fuel to prevent gum deposits forming on essential carburetor parts, fuel filter and tank.

NOTE: The use of a fuel additive, such as STA-BIL, or an equivalent, will minimize the formation of fuel gum deposits during storage. Such an additive may be added to the gasoline in the fuel tank of the engine, or to the gasoline in a storage container.

- All fuel should be removed from the tank. Run the engine until it stops from lack of fuel. The small amount of fuel that remains in the sump of the tank should be removed by absorbing it with a clean, dry cloth.
- While engine is still warm, drain oil from crankcase. Refill with fresh oil.
- Remove spark plug, pour approximately ½ ounce (15 cc) of engine oil into cylinder and crank slowly to distribute oil. Replace spark plug.
- Clean dirt and chaff from cylinder, cylinder head fins, blower housing, rotating screen and muffler areas.
- Store in a clean and dry area.

TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine does not start.	<ol style="list-style-type: none"> 1. Gas tank is empty. 2. Choke not in FULL position. 3. Spark plug loose. 4. High tension wire loose or disconnected from spark plug. 5. Spark plug gap is incorrect. 6. Spark plug is defective. 7. Faulty points or condenser. 	<ol style="list-style-type: none"> 1. Fill fuel tank with gasoline: Refer to Fill Fuel Tank, page 13. 2. Move choke to FULL CHOKE position: Refer to Starting And Stopping Instructions, page 14. 3. Tighten spark plug to 15 ft.-lb. (20.4 Nm) 4. Install high tension wire on spark plug. 5. Set gap between electrodes at 0.030 of an inch (0.76 mm). 6. Install new, correctly gapped plug: Refer to Tune-Up Specifications, page 16. 7. Contact Authorized TORO Service Dealer.
Engine starts hard or loses power.	<ol style="list-style-type: none"> 1. Dirt, water, or stale fuel in gas tank. 2. Vent hole in fuel tank cap is plugged. 3. Air cleaner is dirty. 	<ol style="list-style-type: none"> 1. Drain gas and clean fuel tank. Fill tank with clean, fresh gasoline: Refer to Fill Fuel Tank, page 13. 2. Clean or replace fuel tank cap. 3. Clean the air cleaner element: Refer to To Service Air Cleaner, page 15.
Engine operates erratically.	<ol style="list-style-type: none"> 1. Spark plug is defective. 2. Spark plug is gapped incorrectly. 3. Air cleaner is dirty. 	<ol style="list-style-type: none"> 1. Install new, correctly gapped plug: Refer to Tune-Up Specifications, page 16. 2. Set gap between electrodes at 0.030 of an inch (0.76 mm). 3. Clean the air cleaner element: Refer to To Service Air Cleaner, page 15.

TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine idles poorly.	<ol style="list-style-type: none"> 1. Air cleaner is dirty. 2. Oil level in crankcase is low. 3. Air slots in engine shroud are plugged. 4. Cooling fins and air passages under engine blower housing are plugged. 5. Improper idle adjustment. 	<ol style="list-style-type: none"> 1. Clean the air cleaner element: Refer to To Service Air Cleaner, page 15. 2. Add oil to crankcase: Refer to Fill Crankcase With Oil, page 13. 3. Remove obstruction from slots. 4. Remove obstruction from cooling fins and blower housing: Refer to Clean Cooling System, page 15. 5. Adjust carburetor properly, page 16.
Engine misfires at high speed.	<ol style="list-style-type: none"> 1. Air gap between electrodes of spark plug is too close. 2. Carburetor adjusted incorrectly. 	<ol style="list-style-type: none"> 1. Set air gap at 0.030 of an inch (0.76 mm). 2. Adjust carburetor: Refer to Carburetor Adjustments, page 16.
Engine overheats.	<ol style="list-style-type: none"> 1. Cooling air flow is restricted. 2. Oil level in crankcase is low. 3. Incorrect spark plug. 	<ol style="list-style-type: none"> 1. Remove any obstruction from slots in shroud, blower housing, air passages and cooling fins on engine. 2. Add oil to crankcase: Refer to Fill Crankcase With Oil, page 13. 3. Install Champion RCJ8 spark plug that is gapped at 0.030 of an inch.
Tiller vibrates abnormally.	<ol style="list-style-type: none"> 1. Tine section is loose. 2. Engine mounting bolts are loose. 3. Improper carburetor adjustment. 4. Air cleaner plugged. 	<ol style="list-style-type: none"> 1. Secure tine section with clevis pin and hair pin cotter. 2. Tighten engine mounting bolts. 3. Adjust carburetor properly, page 16. 4. Service air cleaner, page 15.
Tines do not rotate.	<ol style="list-style-type: none"> 1. Belt is broken. 2. Clutch control is adjusted incorrectly. 	<ol style="list-style-type: none"> 1. Contact Authorized TORO Service Dealer for replacement belt. 2. Refer to Clutch Control Lever Adjustment, page 9.

MAINTENANCE RECORD

[illegible]

IDENTIFICATION AND ORDERING

MODEL AND SERIAL NUMBERS

The tiller has two identification numbers: a model number and a serial number. The two numbers are stamped on a decal which is on the right side of the handle support bracket.

Record the model and serial numbers below and keep this manual in a safe place for future reference.

Model No. _____

Serial No. _____

In any correspondence concerning the tiller, supply the model and serial numbers to assure that 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 tiller.
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.

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 Product 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 Consumer 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 limitations on how long an 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 or limitation of incidental or consequential damages, so the above limitation or 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.