FORM NO. 3320-550

TORO®

MODEL NO. 20587 - 0000001 & UP

OPERATOR'S MANUAL

18" (0.46 m) HP 3-in-1 REAR BAGGER

FINGERTIP START

⚠ SAFETY INSTRUCTIONS

BEFORE OPERATING

1. Read this manual carefully before operating the mower. Become familiar with the controls and proper use of the mower. Never allow children to operate the mower or adults to operate it without proper instructions.
2. Keep everyone, especially children and pets, away from area of operation. Thoroughly inspect area where mower will be used and remove sticks, stones, wire, and debris.
3. Wear long pants and substantial shoes. Do not operate mower while wearing open sandals or when barefoot.
4. Check fuel level before starting engine. Do not fill fuel tank indoors or when the engine is running. Wait until engine cools for several minutes after running. Wipe up spilled gasoline before starting engine.
5. Keep all guards, shields, and safety devices in place. Repair or replace defective or damaged parts.

WHILE OPERATING

6. Do not run engine indoors.
7. Always maintain secure footing. Keep a firm grip on the handle and walk; never run. Never operate mower in wet grass. Mow only in daylight or in good artificial light.
8. Mow across the face of slopes; never up and down. Use extreme caution when changing direction on slopes. Do not mow excessively steep slopes.
9. Always wear safety glasses or eye shields during operation to protect eyes from foreign objects that may be thrown from the machine. Keep face, hands, and feet away from the mower housing and cutter blade when the engine is running. Stay behind the handle until the engine stops and keep clear of discharge opening at all times.
10. When mulching, keep grass bag in place and assure chute door is closed. When bagging grass, stop engine and assure discharge door is closed before the bag is removed and emptied.
11. Shut engine off and wait for all moving parts to stop before unclogging chute or removing grass bag.
12. Since the blade rotates for a few seconds after the throttle control is moved to OFF, stay behind the handle until all moving parts stop.
13. After striking a foreign object or if mower vibrates abnormally, stop engine and remove wire from spark plug. Check mower for damage and make all repairs before using mower again.
14. Stop the engine before adjusting the height-of-cut.
15. Stop the engine before crossing a gravel driveway, road or sidewalk.
16. Stop engine before leaving the operator's position—behind the handle. Disconnect wire from spark plug if mower will be unattended.
17. Do not touch muffler or engine while it is running or shortly after it is stopped because muffler or engine will be hot enough to cause a burn.

MAINTENANCE AND STORAGE

18. Perform only those maintenance instructions described in this manual. If major repairs are ever needed or if assistance is desired, contact your local Authorized TORO Service Dealer.

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SAFETY INSTRUCTIONS

19. Before mower is cleaned, inspected, serviced, or adjusted, stop engine and disccnnect wire from spark plug. Keep wire away from plug to prevent accidental starting.

20. To assure the mower is in safe operating condition, frequently check and keep all nuts, bolts, and screws tight. Assure blade bolt is tightened to proper specifications.

21. To reduce fire hazard, keep engine free of excessive grease, grass, leaves, and accumulations of dirt.

22. Check grass catcher bag frequently for wear or deterioration. Replace with a new bag for your protection. Check that replacement bags comply with original TORO recommendations or specifications.

23. Allow engine to cool before storing mower in any enclosure. Do not store mower with gasoline in fuel tank near any open flame or where gasoline fumes may be ignited by a spark.

24. Do not overspeed the engine by changing governor settings.

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

SAFETY SYMBOL GLOSSARY



Safety alert



Keep hands/feet away from blade



Place foot here when starting



Stop engine before leaving operator position



Keep all guards in place



Keep hands away



Never open chute door on mower when engine is running, unless grass bag or side discharge attachment is installed



Keep bystanders from mowing area

SAFETY SYMBOL GLOSSARY



Read and understand operator's manual



Slow



Fast



Engine speed (Throttle)



Engine start

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SET-UP INSTRUCTIONS

INSTALL HANDLE, BAG, AND STARTER ROPE

1. LOWER HANDLE (Fig. 1)—Push ends of lower handle together and install on pivot pins. Insert bolts through hole in handle latches and install handle knobs. Tighten securely. Assure control cable is to the rear and inside of handle.

Note: Handle can be set in any of three positions, depending on operator height.

2. UPPER HANDLE (Fig. 2)—Secure upper and lower handle in place with handle bolts and nuts. Secure control cables in position with cable ties.

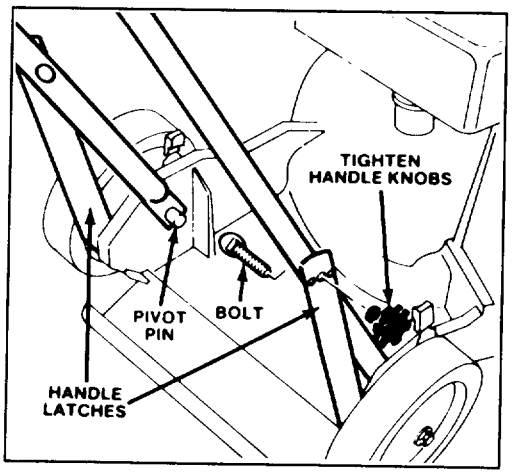


Figure 1

SET-UP INSTRUCTIONS

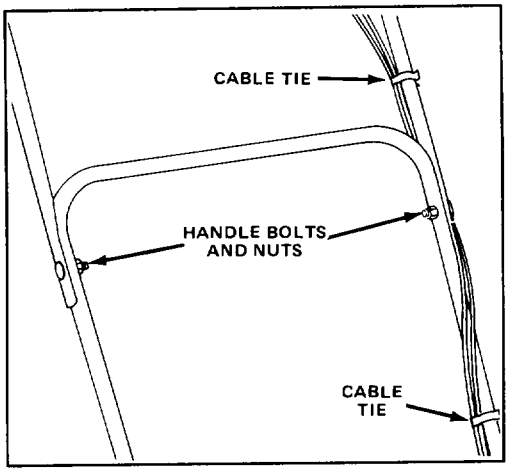


Figure 2

3. Pull starter rope through rope guide on handle (Fig. 3). By squeezing control bar on handle, blade brake will release and allow rope to be pulled up easily to loop. Assure control cables are to the rear and inside of handles.

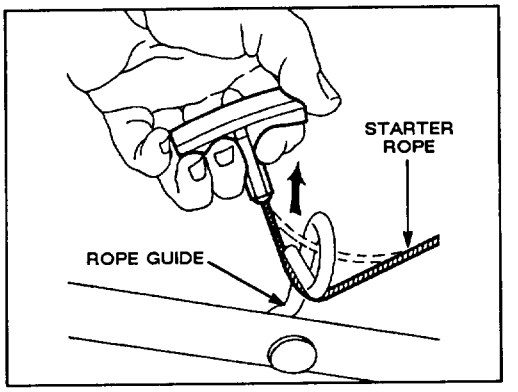


Figure 3

4. Install grass bag: refer to Using Grass Bag, page 6, steps 1–4.

BEFORE OPERATING

FILL CRANKCASE WITH OIL

Initially, crankcase must be filled with 21 ounces (0.621 L) of SAE 30 or 10W30 oil. Use any high quality detergent oil having the American Petroleum Institute (API) "service classification" SC, SD, SE or SF.

Before each use, assure oil level is between FULL and ADD marks on dipstick (Fig. 4). Add oil if level is low.

1. Position mower on level surface and clean around oil dipstick.

2. Remove dipstick by rotating cap counterclockwise (Fig. 4).

3. Wipe dipstick and insert it into filler neck. Rotate cap clockwise. Then remove dipstick and check level of oil on side of dipstick with FULL and ADD marks (Fig. 4). If level is low, add only enough oil to raise level to FULL mark on dipstick. **DO NOT FILL ABOVE FULL MARK BECAUSE ENGINE COULD BE DAMAGED WHEN STARTED. POUR OIL SLOWLY.**

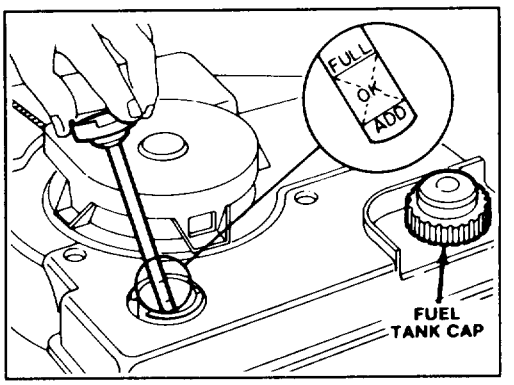


Figure 4

4. Insert dipstick into filler neck and rotate cap clockwise to lock.

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

BEFORE OPERATING

WARNING

DANGER: Gasoline is extremely flammable and explosive under certain conditions. Do not smoke when handling fuel and keep fuel far away from open flames and sparks. Never buy more than a 30 day supply of gasoline. Store it in an approved container. Keep gasoline out of reach of children.

Refuel outdoors and only when engine is cold. Do not fill tank full. Fill tank to within 1/4" to 1/2" (6 to 13 mm) from top of tank, not into filler neck. This space is for expansion of fuel. Use funnel or spout to prevent spilling. Wipe up any spilled gas.

FILL FUEL TANK WITH GASOLINE

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

1. Clean around fuel tank cap and remove cap from tank (Fig. 4). Using unleaded gasoline, fill fuel tank to within 1/2 inch (13 mm) from top of tank, not into filler neck. Do not fill tank full.
2. Install fuel tank cap and wipe up any spilled gasoline.

IMPORTANT: DO NOT MIX OIL WITH THE GASOLINE. NEVER USE METHANOL, GASOLINE CONTAINING METHANOL, GASOHOL CONTAINING MORE THAN 10% ETHANOL OR WHITE GAS BECAUSE ENGINE FUEL SYSTEM DAMAGE COULD RESULT.

DO NOT USE FUEL ADDITIVES OTHER THAN THOSE MANUFACTURED FOR FUEL STABILIZATION DURING STORAGE SUCH AS TORO'S STABILIZER/CONDITIONER OR A SIMILAR PRODUCT. TORO'S STABILIZER/CONDITIONER IS A PETROLEUM DISTILLATE BASED STABILIZER/CONDITIONER. TORO DOES NOT RECOMMEND STABILIZERS WITH AN ALCOHOL BASE SUCH AS ETHANOL, METHANOL OR ISOPROPYL. STABILIZERS SHOULD NOT BE USED TO TRY TO ENHANCE THE POWER OR PERFORMANCE OF MACHINE.

OPERATING INSTRUCTIONS

3-in-1 MOWING VERSATILITY

REAR BAG— Bag lush grass in the spring.

MULCH—In summer when grass grows slower and is drier, mulch by closing chute door (Fig. 5). For convenience and protection, keep grass bag on mower.

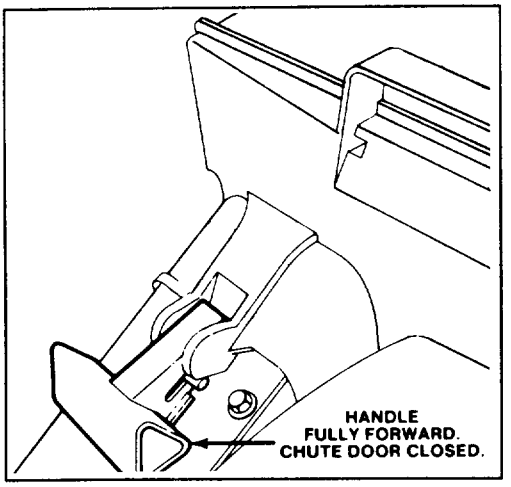


Figure 5

SIDE DISCHARGE—Disperse clippings with optional, rear-mounted side discharge chute which install in seconds (Fig. 6).

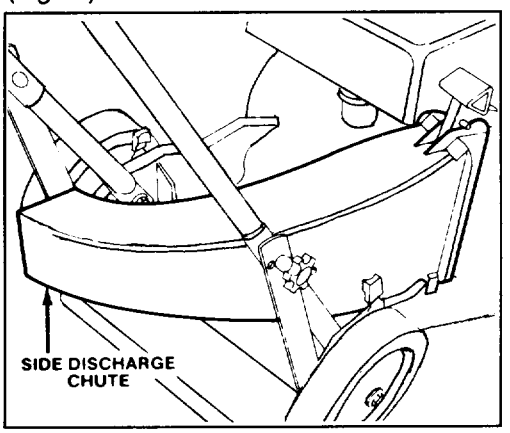


Figure 6

ADJUSTING HEIGHT-OF-CUT

Five letters cast into the housing represent each graduated increment (Fig. 7).

1. Stop the engine and wait for all moving parts to stop.

2. For easier adjustment, lift housing up so wheel is off ground. **Do not put fingers under housing when lifting.** Squeeze adjusting lever toward wheel and move to desired setting (Fig. 7). Assure pin on adjusting lever engages notch in housing. Adjust all wheels to the same setting.

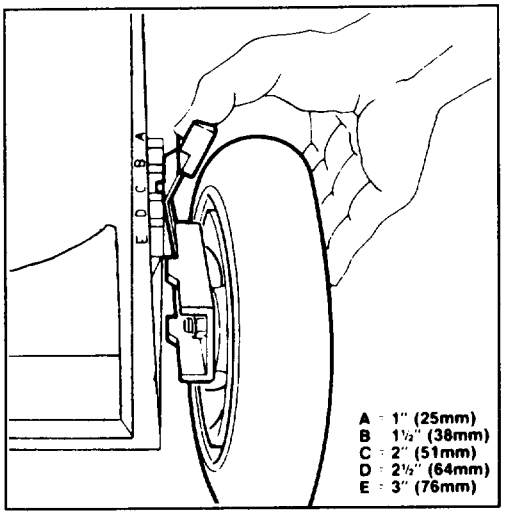


Figure 7

STARTING AND STOPPING

1. CONTROLS—Throttle, control bar, and fingertip starter are on upper handle (Fig. 8).

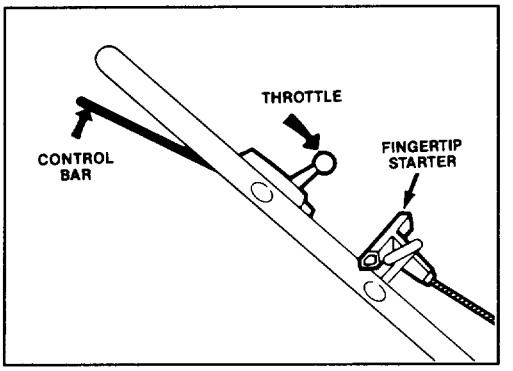


Figure 8

2. Push spark plug wire onto spark plug (Fig. 11).

3. STARTING—Move throttle to FAST and hold control bar against handle. Pull fingertip starter out until positive engagement results; then pull vigorously to start the engine. Regulate throttle (Fig. 8) as desired when engine starts. If engine does not start after 2 or 3 pulls, wait 10 seconds for carburetor prime well to refill with gasoline.

Before starting engine when temperature is below 50°F (10°C), push cold start primer 5 times (Fig. 11), pausing 2 seconds between each push.

4. STOPPING—Release control bar and stay behind handle until engine and blade stop. Pull wire off spark plug if mower will be unattended or not used.

USING GRASS BAG

Keep bag installed when bagging or mulching.

1. Stop engine and wait for all moving parts to stop.

⚠ CAUTION

Except when grass bag or side discharge attachment is used, never open discharge door on mower when engine is running because grass clippings and other debris discharges with enough force to cause injury.

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

2. Assure chute door handle is fully forward and pin is engaged in catch (Fig. 5).

3. INSTALLING BAG (Fig. 9)—Hold front of bag frame and bag door together. Then place opening in bag door against flanges on rear chute and slide bag door down.

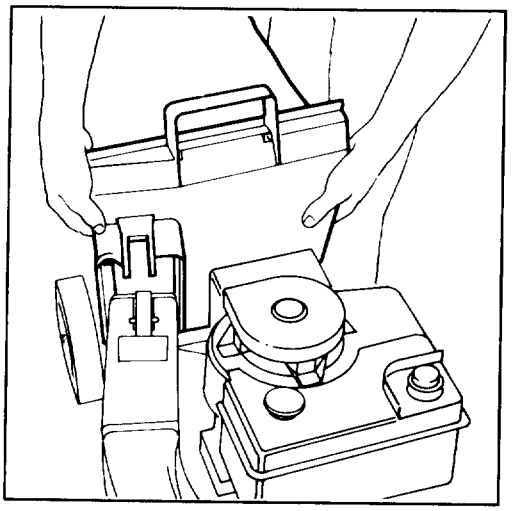


Figure 9

4. Pull chute door handle backward until pin locks bag in place (Fig. 10). Chute door in mower housing is now open.

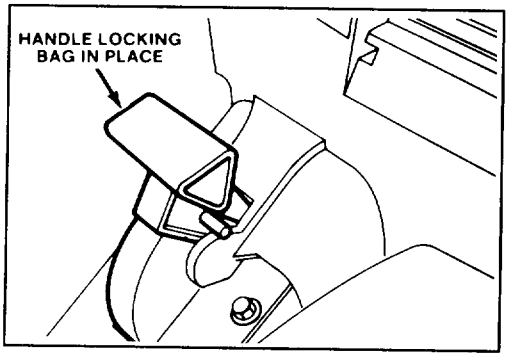


Figure 10

OPERATING INSTRUCTIONS

⚠ CAUTION

If discharge door cannot be closed because grass clippings clog discharge area, gently move discharge door handle back and forth until door can be closed completely. Do not force discharge door closed because door or handle may be damaged. If door still cannot be closed, remove obstruction.

5. EMPTYING BAG—Stop engine and wait for all parts to stop. Move chute door handle forward to engage the locking pin with catch (Fig. 13). Grasp handles at front and rear of bag and lift bag off mower. Gradually tip bag forward to empty clippings.

6. To reinstall bag, repeat steps 3 and 4.

OPERATING TIPS

1. CHECK OIL LEVEL—Maintain oil level between ADD and FULL marks as shown on dipstick (Fig. 4).

2. BEFORE EACH MOWING—Assure engine brake and control bar function properly. When control bar is released, engine and blade are designed to stop.

3. CUTTING AND BAGGING–Best results are achieved when engine is running at maximum speed and only about 1/3 of the grass blade is cut. if long grass must be cut, use highest height-of-cut setting for first mowing. Then recut the grass at a more normal setting. If too long of grass is cut, mower may plug and cause engine to stall.

4. SHARP BLADE–Begin each cutting season with a sharp blade. Periodically file down nicks.

MAINTENANCE

⚠ CAUTION

Pull wire off spark plug before performing adjustments or maintenance.

SERVICING AIR CLEANER

Normally, replace air cleaner after every 25 operating hours. More frequent replacement is required when mower is operated in dusty or dirty conditions.

1. Stop engine and pull wire off spark plug (Fig. 11).

2. Remove air cleaner cover and clean thoroughly (Fig. 11).

3. Inspect air cleaner element (Fig. 11). If necessary, remove and clean.

A. Wash foam element in a solution of liquid soap and warm water. Squeeze to remove dirt. Do not twist because foam may tear. Rinse thoroughly in clear water.

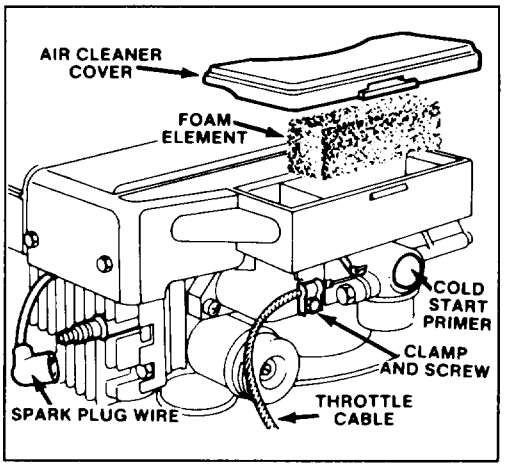


Figure 11

B. Dry by wrapping in a clean rag. Squeeze rag and foam element to dry.

C. SATURATE element with 5 teaspoons (25 ml) of SAE 30 engine oil. Squeeze element to remove excess oil and to distribute oil thoroughly. A damp element is desirable.

4. Install foam element and air cleaner cover.

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

REPLACING SPARK PLUG

Use a Champion RJ-17LM spark plug or equivalent. Correct air gap is 0.030" (0.76 mm). Remove plug after every 25 operating hours and check its condition.

1. Stop engine and pull wire off spark plug (Fig. 11).
2. Clean around spark plug and remove plug from cylinder head (Fig. 11).

IMPORTANT: Replace a cracked, fouled or dirty spark plug. Do not sand blast, scrape or clean electrodes because engine damage could result from grit entering cylinder.

3. Set air gap at 0.030" (0.76 mm) (Fig. 12). Install correctly gapped spark plug and gasket seal. Tighten plug firmly to 15 ft-lb (20.4 N·m).

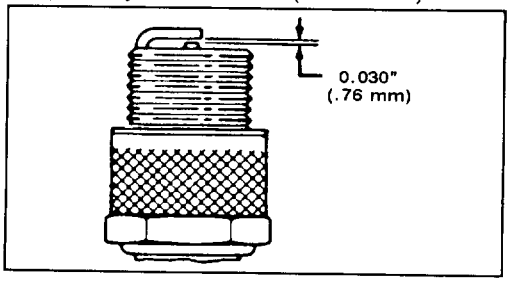


Figure 12

CLEANING MOWER HOUSING

To assure optimum performance, keep underside of mower housing and grass deflector clean.

1. Stop engine and pull wire off spark plug (Fig. 11).
2. Drain fuel tank: refer to Draining Fuel, page 9.
3. Tip mower on its left side (Fig. 15).
4. Remove dirt and grass clippings that stick to housing by spraying it with a garden hose. Scrape out remaining debris with hardwood scraper. Avoid burrs and sharp edges.

DRAINING GASOLINE

1. Stop engine and wait for engine to cool. Pull wire off spark plug (Fig. 11).

⚠ CAUTION

Drain gasoline from a cold engine only.

2. Squeeze ends of clip holding fuel line on fuel tank fitting (Fig. 13). Slide clip down fuel line.
3. Remove fuel line and allow fuel to flow into drain pan.
4. Reinstall fuel line.

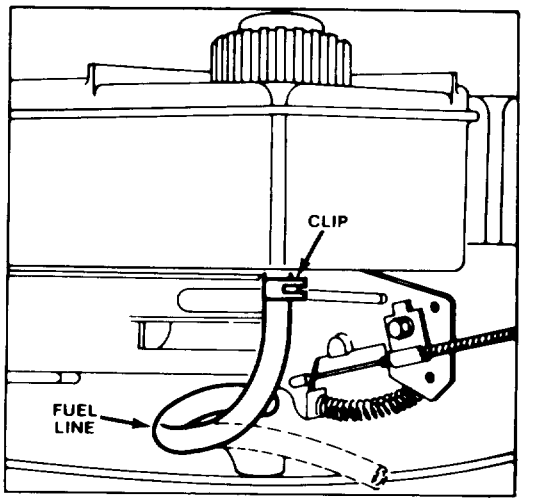


Figure 13

CHANGING CRANKCASE OIL

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

1. Stop engine and pull wire off spark plug (Fig. 11).

2. Remove grass bag. Drain gasoline from fuel tank: refer to Draining Gasoline, page 9.

3. Remove dipstick. Tip mower forward and empty all oil into drain pan (Fig. 14). Tip mower down and up a few times to ensure oil drains completely.

4. After draining, fill engine with fresh oil: refer to Fill Crankcase With Oil, page 4.

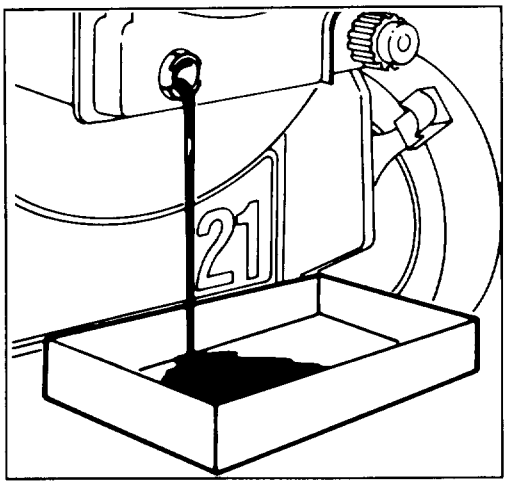


Figure 14

INSPECTING/REMOVING/SHARPENING BLADE

1. Stop engine and pull wire off spark plug (Fig. 11).

2. Drain gasoline from fuel tank; refer to Draining Gasoline, page 9.

3. Tip mower on its left side (Fig. 15). Avoid rotating the blade because starting problems may result.

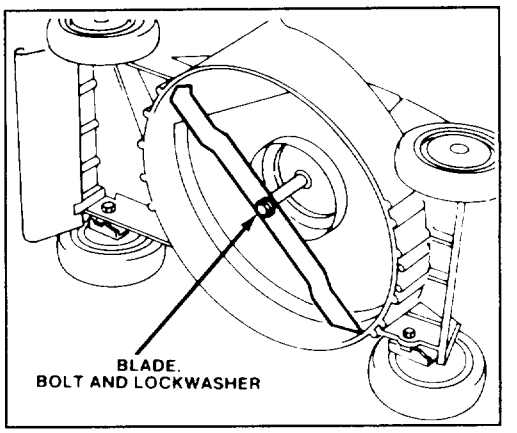


Figure 15

4. INSPECTING BLADE—Carefully examine blade for sharpness and wear, especially where flat and curved parts meet (Fig. 16A). Since sand and abrasive material can wear away the metal that connects the flat and curved parts of the blade, check blade before using the mower. If a slot or wear is noticed, (Fig. 16B & C), replace blade. Refer to step 5.

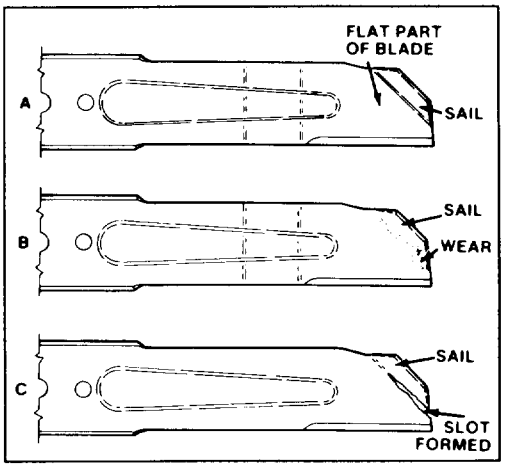


Figure 16

Note: For optimum performance, install new blade before cutting season begins. During the year, file down small nicks to maintain the cutting edge.

MAINTENANCE

CAUTION

If blade is allowed to wear, a slot may form near the sail. Eventually a piece of blade may break off resulting in serious injury to yourself or a bystander.

5. REMOVING BLADE—Grasp end of blade using a rag or thickly padded glove. Remove blade bolt, lockwasher and blade (Fig. 15).

6. SHARPENING BLADE—Using a file, sharpen top side of blade and maintain original cutting angle (Fig. 17). The blade will remain balanced if same amount of material is removed from both cutting edges.

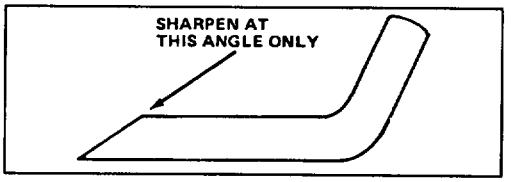


Figure 17

IMPORTANT: Check balance of blade by putting it on a blade balancer. An inexpensive balancer can be purchased at a hardware store. A balanced blade stays in a horizontal position and an unbalanced blade settles to the heavy side. If blade is not balanced, file more metal off cutting edge on heavy end of blade.

7. Install sharp, balanced blade with blade bolt and lockwasher. Sail part of blade must point toward top of mower housing to assure correct installation. Tighten blade bolt to 50 ft-lb (68 N·m).

LUBRICATION

After every 25 operating hours or when season ends, front and rear wheels must be lubricated.

1. Apply 2 or 3 drops of light oil on inside of front and rear wheel bolts. Spin wheels to distribute oil into bushings. Wipe up excess oil.

ADJUSTING THROTTLE CONTROL

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

1. Stop engine and pull wire off spark plug (Fig. 11).
2. Move throttle control lever to the OFF position.
3. Loosen cable clamp screw until throttle cable is free to slide (Fig. 11).
4. Move carburetor control arm to the left until it contacts grounding bracket (Fig. 11). Pull throttle cable slightly to remove any slack, and tighten the cable clamp screw to lock the adjustment in place.

ADJUSTING BLADE BRAKE

Whenever a new blade brake cable assembly is installed, an adjustment is required.

1. Stop engine and pull wire off spark plug (Fig. 11).
2. CHECK ADJUSTMENT (Fig. 18)—Move control bar toward handle until slack in wire is removed. Gap between brake lever and handle must be 1/8"-3/16". See step 3 for adjustment.

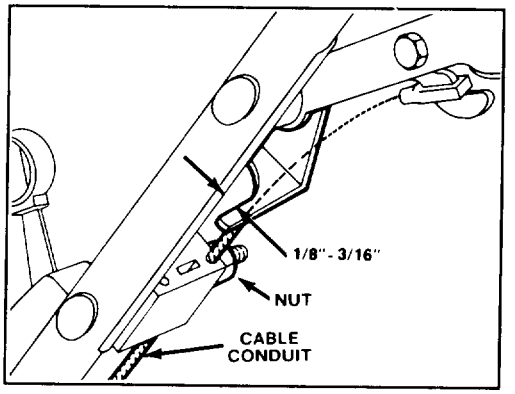


Figure 18

3. ADJUST CABLE CONDUIT (Fig. 18)—Loosen nut on cable bracket. Insert 1/8"-3/16" object between brake lever and handle. Pull down on cable conduit until all slack is removed from wire. Then tighten nut.

MAINTENANCE

PREPARING MOWER FOR STORAGE

1. For long term storage, either drain gasoline from fuel tank or use a fuel additive before storing. To drain gasoline, refer to Draining Gasoline, page 9. After fuel is drained, start engine and let it idle until all fuel is consumed and engine stops. Repeat the starting procedure two more times to assure all gas is removed from the engine. If gasoline is not drained, gum-like varnish deposits will form and cause poor engine operation, even starting problems.

Fuel can be left in gas tank only if a fuel additive, such as Toro's Stabilizer/Conditioner, is added to gasoline and run through engine before storing. Toro's Stabilizer/Conditioner is a petroleum distillate based conditioner/stabilizer. Toro does not recommend stabilizers with an alcohol base, such as ethanol, methanol or isopropyl. Use fuel stabilizer in recommended quantities as specified on container.

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

2. Pull wire off spark plug and remove plug from cylinder head. Pour 30 ml of SAE 30 oil into spark plug hole. Pull starter rope slowly to coat inside of cylinder. Reinstall spark plug and tighten to 15 ft-lb (20.3 N·m). If torque wrench is not used, tighten plug firmly. **DO NOT INSTALL WIRE ON SPARK PLUG.**

3. Drain oil: refer to Changing Crankcase Oil, pages 9-10. After oil is drained, do not fill crankcase with oil until the following steps (3-10) are completed.

4. Clean underside of mower housing: refer to Cleaning Mower Housing, page 9.

5. Check condition of blade: refer to Inspecting/Removing/Sharpening Blade, pages 10-11.

6. Tighten all nuts, bolts, and screws.

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

8. Clean air cleaner: refer to Servicing Air Cleaner, pages 8-9.

9. Lubricate the wheels: refer to Lubrication, page 11.

10. Touch up all rusted or chipped paint surfaces. Toro Re-Kote paint is available from an Authorized TORO Service Dealer.

11. Fill crankcase with oil; refer to Fill Crankcase With Oil, page 4.

12. Store mower in a clean, dry place. Cover mower to keep it clean and protected.

TORO SERVICE SUPPORT

If help - concerning safety, set-up, operation, maintenance or troubleshooting - 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 factory approved accessories and replacement parts. Keep your Toro all TORO. Buy genuine TORO replacement parts and accessories.

PRODUCT IDENTIFICATION

A model and a serial number decal is located at rear of mower housing, near the discharge door. Always refer to specific numbers on this decal in correspondence or when replacement parts are needed.