FORM NO. 3311-814

TORO®

MODEL NO. 10510 – 1000001 & UP

OPERATOR'S MANUAL

21" (0.53 m) REAR BAGGER

SELF-PROPELLED, KEY-LECTRIC START

SAFETY INSTRUCTIONS

The Rear Bagger was tested and certified by an independent laboratory for compliance with the B71.1 - 1980 specifications of the American National Standards Institute. However, improper use or maintenance by the operator or owner of the mower can still result in injury. To reduce the potential for any injury, comply with the following safety instructions.

This machine is equipped with a Blade Brake which is designed to stop the engine and blade when the control lever is released. Check to be sure the control and brake function properly before each use of mower. Make sure engine completely stops before leaving the operators position, behind the handle.

BEFORE OPERATING

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

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

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

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

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

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

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

8. Gasoline is highly flammable; handle it carefully.

   A. Use an approved gasoline container.

   B. Do not fill fuel tank when engine is hot or running.

   C. Do not smoke while handling gasoline.

   D. Fill fuel tank outdoors and up to about one-half inch from the top of the tank, not the filler neck.

   E. Wipe up any spilled gasoline.

WHILE OPERATING

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

10. Cut grass during the daytime or when there is adequate artificial light. Cut grass slopes from side to side. Avoid slopes when grass is wet. If possible, mow when grass is dry for best results.

11. 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.

12. When operating mower without the bag, the chute door must be closed. Whenever grass is being bagged, the engine must be shut off and the chute door closed before the bag is removed and emptied.

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

14. Since the blade rotates for a few seconds after the control bar is released, stay behind the handle until all moving parts stop.

15. If a solid object is hit by the blade or if mower vibrates abnormally, shut engine off immediately and wait for all moving parts to stop. Disconnect high tension wire from spark plug and keep wire

SAFETY INSTRUCTIONS

away from plug to prevent possibility of accidental starting. Check mower for possible damage, bent blade, an obstruction, or loose part(s). Make all repairs before using the mower.

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

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

18. Before leaving the operator's positon – behind the handle – stop the engine and wait for all moving parts to stop. Disconnect high tension wire from spark plug if mower will be unattended.

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

20. Before the mower is serviced or adjusted, stop the engine and disconnect high tension wire from spark plug. Keep the wire away from the plug to prevent the possibility of accidental starting.

MAINTENANCE

21. 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 50 ft-lb (68 N·m) and engine mounting bolts are tightened to 28-40 ft-lb (38-54 N·m).

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

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

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

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

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

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

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

29. 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.

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SET-UP INSTRUCTIONS

INSTALL HANDLE

1. Raise upper handle until aligned with lower handle. Tighten handle knobs (Fig. 1).

2. Cut box end open at front of mower, remove bag and carton liners and roll mower out of box.

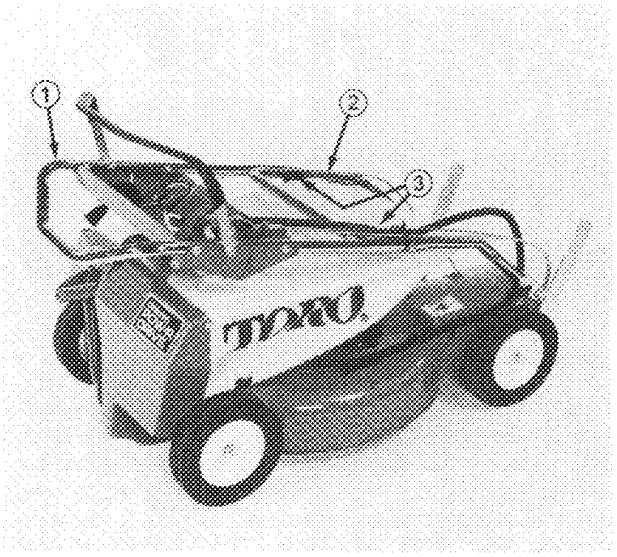

Figure 1

1. Upper handle
2. Lower handle
3. Handle knobs

3. Pivot handle backward until handle studs snap into center holes of handle latches (Fig. 2). Make sure control cables are to the rear and inside of handles.

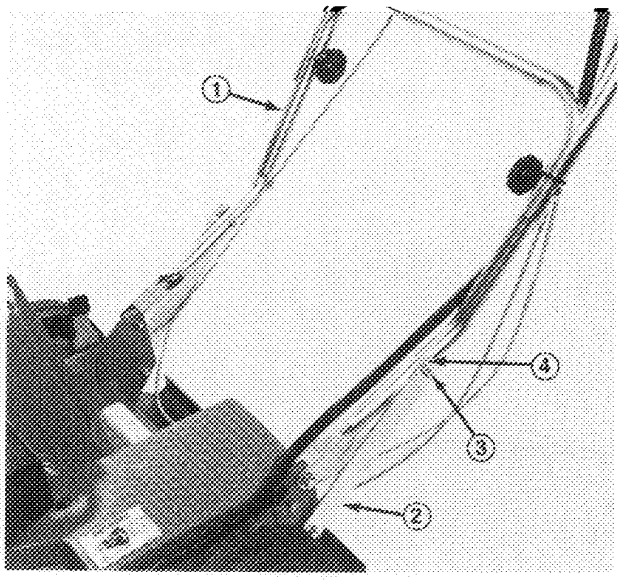

Figure 2

1. Handle
2. Handle latches
3. Handle studs
4. Latch holes

Note: Handle height is adjustable for operator comfort. Stand behind handle to gauge height. Position handle studs into one of the other holes in handle latches to change height.

ASSEMBLE BAG TO MOWER

1. Assure chute door handle is fully forward and locked in place (Fig. 3).

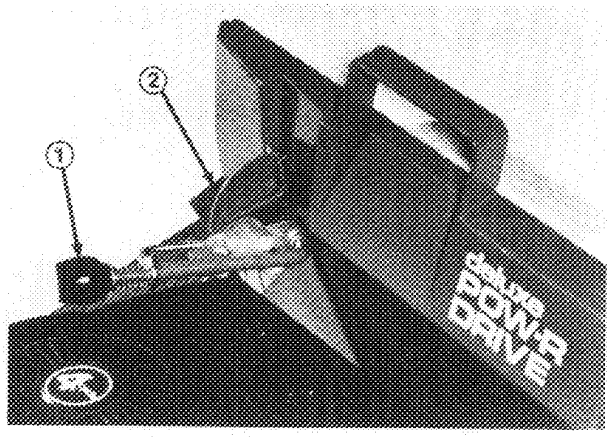

Figure 3

1. Chute door handle fully forward
2. Locating stud

2. Slide guide hole in bag door onto locating stud on mower housing (Fig. 3); then set rear of bag frame onto handle.

3. Squeeze lockout lever until it clears the bag latch (Fig. 4). Then move handle rearward until lockout lever locks in notch at rear of bag latch (Fig. 4). The chute door in mower housing is now open and mower is ready to bag grass clippings.

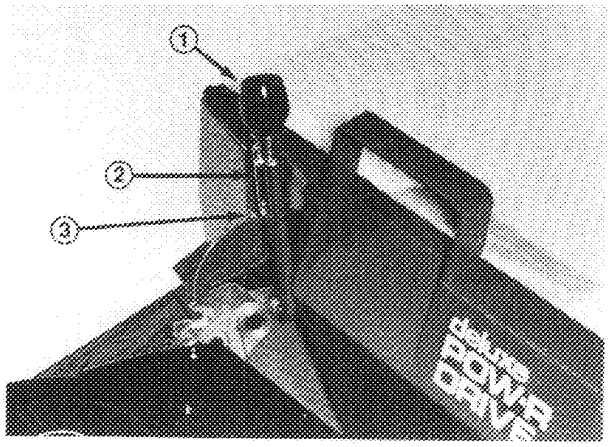

Figure 4

1. Chute door handle
2. Lockout lever
3. Notch

BEFORE OPERATING

INSTALL BATTERY AND CONNECT WIRES

1. Charge the battery: refer to Charging Battery.

2. Hold battery so connector terminal is to the left. Slide battery between mounting slots on back of control panel (Fig. 5).

3. Push wiring harness connector onto battery terminal (Fig. 5).

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

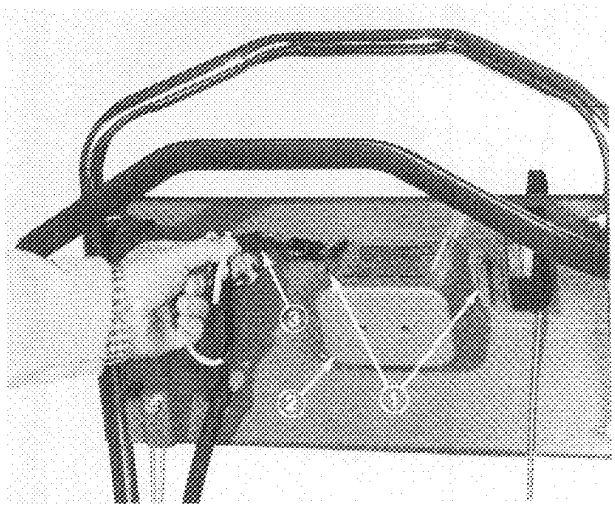

Figure 5

1. Slots
2. Battery
3. Wiring Harness Connector

FILL CRANKCASE WITH OIL

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

1. Position mower on level surface.

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

3. Remove dipstick by rotating cap counterclockwise 1/4 turn (Fig. 6).

4. Slowly pour approximately 21 ounces (0.621 l) of oil into the filler neck. The engine uses any high quality detergent oil having the American Petroleum Institute – API – "service classification" MS, SC, SD or SE. The recommended oil to use is: SAE 10W-30 or 10W-40.

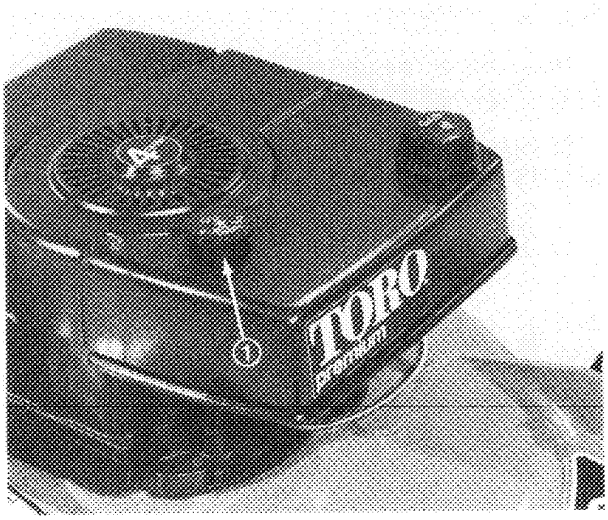

Figure 6

1. Dipstick location

5. Wipe end of dipstick with clean rag and insert it into filler neck. Rotate cap clockwise 1/4 turn. Then remove the dipstick and check level of oil by reading the dipstick (Fig. 7). If level of oil is low, add only enough oil to raise level to FULL mark on dipstick. DO NOT ADD OIL SO LEVEL RISES ABOVE FULL MARK BECAUSE ENGINE COULD BE DAMAGED WHEN IT IS STARTED.

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

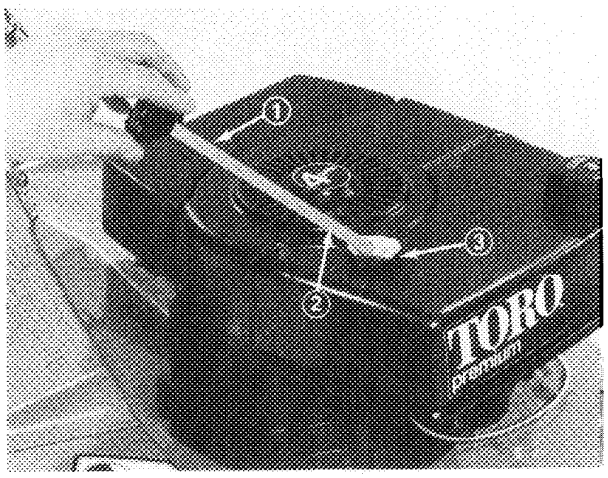

Figure 7

1. Dipstick
2. Read dipstick here
3. Filler neck

BEFORE OPERATING

FILL FUEL TANK WITH GASOLINE

1. Clean area around fuel tank cap and remove cap from tank (Fig. 8).

2. Fill fuel tank to within 1/2 inch (12.7 mm) from top of the tank with unleaded gasoline. Install fuel tank cap securely.

3. Wipe up spilled gasoline.

IMPORTANT: Unleaded gasoline is recommended. Do not mix any oil with the gasoline, and never use premium gasoline, gasohol, gasoline additives or white gas because engine damage could result. If unleaded gasoline is not available, leaded regular gasoline can be used.



Figure 8

1. Fuel tank cap

DANGER

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

CONTROLS

Ground Speed Control (Fig. 9) – The ground speed control has four positions: NEUTRAL (N), LOW (1), MEDIUM (2) and HIGH (3). Positioning lever in different speed settings changes ground speeds of mower. Press down on control and move control to desired speed selection.

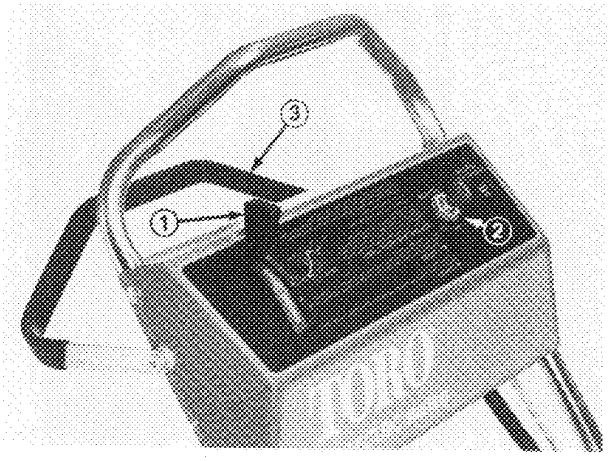

Figure 9

1. Ground speed control
2. Key switch
3. Control bar

Control Bar (Fig. 9) – The control bar has three positions: OFF, NEUTRAL-START, and DRIVE. Lift control bar to Neutral-Start position to start mower. With engine running and ground speed control in one of the ground speed selections, traction operation is accomplished by lifting the control bar to upper handle. Mower can be operated at variable speed in any gear by partially lifting control bar. Mower ground speed, dependent upon speed allowed by gear selection, will increase as control bar is lifted to upper handle. Mower traction operation is stopped when control bar is allowed to return to the Neutral-Start position. Mower engine will stop when control bar is released and allowed to return to the stop position.

Key Switch (Fig. 9) – The key switch is used to start the engine. Rotate key to START position and release key immediately when engine begins to run. DO NOT TURN KEY TO START POSITION WHILE ENGINE IS RUNNING because mechanical damage will likely result.

CONTROLS

Height-of-Cut Adjusters (Fig. 10) – Height-of-Cut is adjustable to one of five approximate settings: 1 inch (25 mm), 1-1/2 inches (38 mm), 2 inches (51 mm), 2-1/2 inches (64 mm), or 3 inches (76 mm). In addition, front wheels have a 1/2 inch (12.7 mm) setting that can be used with the 1 inch (25 mm) rear wheel setting. When cutting thatch or heavy, thick grass, raise rear wheel one setting above the front wheel setting to assure optimum power to the blade.

OPERATING INSTRUCTIONS

ADJUST HEIGHT-OF-CUT

The height-of-cut is adjustable from approximately 1 to 3 inches (25 mm to 76 mm), in 1/2 (12.7 mm) increments, and letters cast into the housing represent each graduated increment (Fig. 10).

A = 1 Inch (25 mm)
B = 1-1/2 Inches (38 mm)
C = 2 Inches (51 mm)
D = 2-1/2 Inches (64 mm)
E = 3 Inches (76 mm)

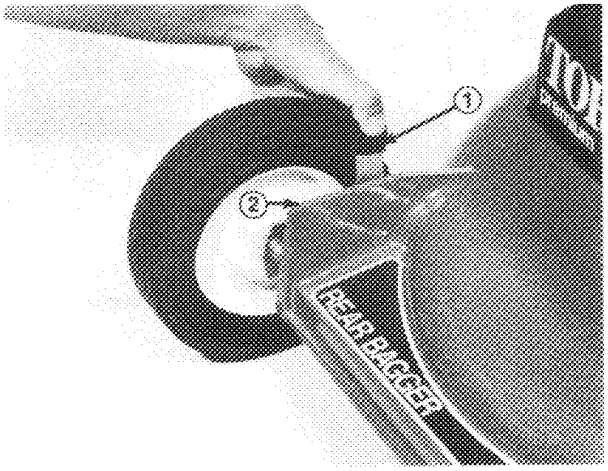

Figure 10

1. Height-of-cut adjuster
2. Height selection guide letters

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

2. Place thumb against height-of-cut adjuster and fingers on outside of wheel (Fig. 10).

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

4. To adjust to 1/2 inch (12.7 mm) setting on front wheels, rotate height-of-cut adjuster rearward past "A" until pin engages hole in housing.

STARTING/STOPPING INSTRUCTIONS

1. Assure high tension wire is pushed onto spark plug, and ground speed control is in NEUTRAL (N).

2. Insert key into the key switch until it snaps in place (Fig. 11).

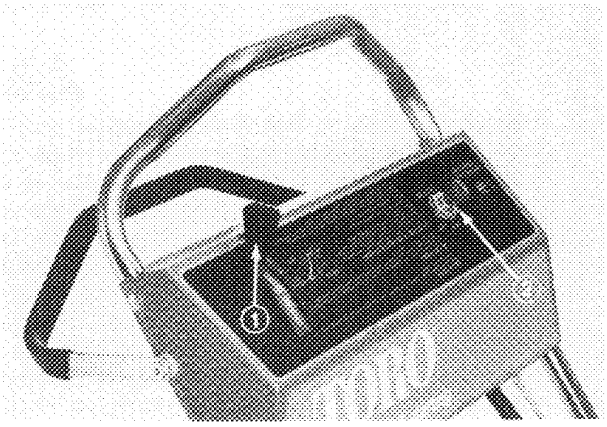

Figure 11

1. Ground speed control *2. Key switch*

3. Lift control bar to NEUTRAL-START position and hold (Fig. 12).



Figure 12

OPERATING INSTRUCTIONS

4. Rotate key to START position to start the engine. Release key immediately when engine starts running. The carburetor has a prime well that supplies an extra rich charge of gasoline for starting the engine. Also, there is a primer bulb to assist starting in colder - below 50° F. temperature. If engine does not start after 3 seconds of continuous cranking by the electric starter, wait about 10 seconds to allow prime well to refill. Repeat this procedure until engine starts. Below 50° F., push primer once (Fig. 13) and continue normal starting procedures. Failure to wait 10 seconds may cause starting problems. If engine does not start, although 10 seconds elapses between each starting attempt, check electrical connections for proper contact. Make sure the battery is fully charged.

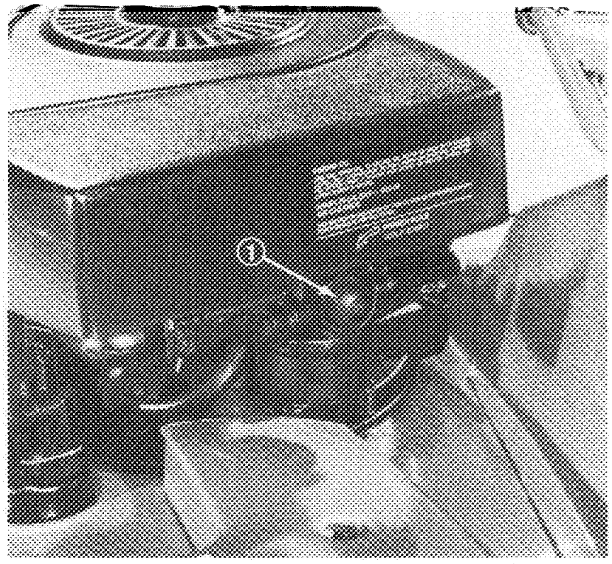

Figure 13

1. Primer-operate for cold starting-below 50°F. (10°C.)

5. To stop engine, release control bar allowing it to return to stop position.

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

MOWER OPERATION

1. Assure ground speed control is in Neutral (N) position, control bar is in NEUTRAL-START position, and start engine; refer to Starting/Stopping The Engine.

2. Stand behind the handle in the operating position. Press down on ground speed control and shift to the desired ground speed selection (Fig. 14).



Figure 14

1. Ground speed control

3. Lift the control bar to achieve traction operation (Fig. 15). Mower can be operated at variable speed in any gear by lifting control bar partially. Mower ground speed, dependent upon speed allowed by gear selection, will increase as control bar is lifted to upper handle. To stop traction operation, release control bar allowing it to return to the NEUTRAL-START position. To move mower in reverse direction, release control bar until traction ceases, and pull back on the upper handle.



Figure 15

1. Control bar
2. Lift control bar to achieve traction

4. If operating on rough turf areas, shift the ground speed control lever to a lower setting and operate the control bar at the full up position. At this slower ground speed the mower will follow ground contours, preventing excessive mower bouncing and providing a more acceptable turf appearance.

OPERATING INSTRUCTIONS

5. If mower has a tendency to creep (move forward) when control bar is in NEUTRAL-START position, drive belt is too tight. If there is slow or no ground speed, even though ground speed control handle is in one of the gear selections and control bar is squeezed fully, drive belt is too loose.

If either of the above two conditions have occurred, traction control cable must be adjusted; refer to Adjusting Traction Control.

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

BAGGING

The Rear Bagger discharges grass clippings into a large, 2-1/2 bushel ($0.088m^3$) bag, and because of the rear bagging feature, both sides of the mower can be used for trimming. Bagging is most effective when engine is running at maximum speed and only about 1/3 of grass blade is being cut. If an excessive amount of grass is being cut off, the mower can plug and cause the engine to stall. If long grass must be cut, adjust mower to the highest height-of-cut; then cut the grass. Follow this by lowering the height-of-cut and cutting the grass again.

⚠ WARNING

The grass bag material will 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.

To bag the grass with the mower:

1. ⚠ Assure engine has stopped running, cutter blade is not moving and bag is properly mounted.

2. Assure chute door handle is fully forward and lockout lever is released into catch (Fig. 16). The chute door of mower housing is now closed.

3. Slide guide hole in bag door onto locating stud on mower housing (Fig. 17); then rest rear of bag frame onto handle.

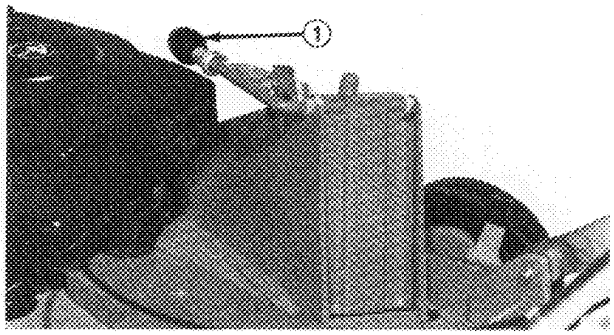

Figure 16

1. Handle forward and door closed

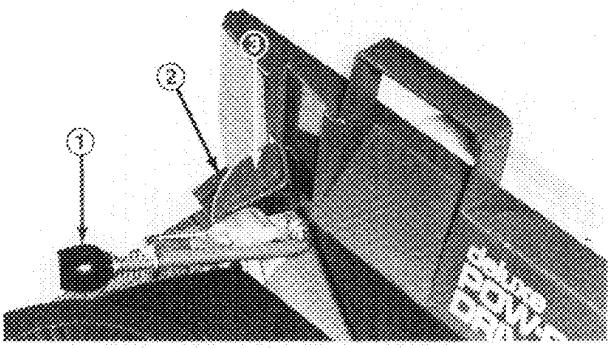

Figure 17

1. Chute door handle fully forward
2. Locating stud
3. Bag latch

4. Squeeze lockout lever until it clears the bag latch. Then move handle rearward until it locks in notch at rear of bag latch (Fig. 18). The chute door in mower housing is now open, and mower is ready to bag grass.

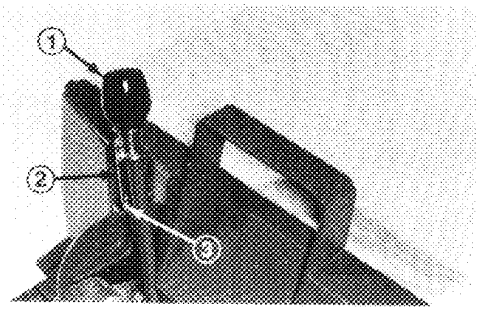

Figure 18

1. Chute door handle
2. Lockout lever
3. Notch

5. ⚠ When bag must be emptied, stop the engine and wait for all parts to stop moving. Move chute door handle forward until it locks in the latch. Then lift bag straight up so clippings stay in the bag rather than falling out the opening.

OPERATING INSTRUCTIONS

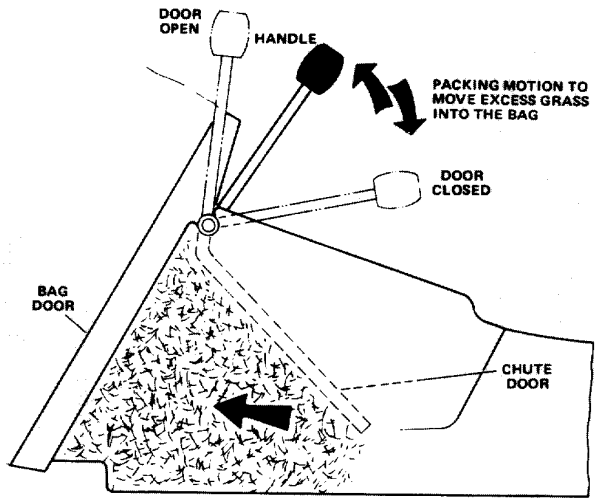

Figure 19

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

DANGER

Never open the chute door when grass bag is removed from the mower and blade is turning. Grass clippings and other debris will be discharged with enough force to cause personal injury. Do not operate mower unless complete bag assembly is attached and properly positioned or rear door is completely closed.

6. To dump grass out of bag, grasp handle at rear of bag and open door at front of bag. While shaking the bag, gradually tip it forward so grass sifts out (Fig. 20). Do not try to dump all the grass at once.

7. Reinstall bag by repeating steps 3 and 4.

MOWING WITHOUT THE BAG

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

To mow without the bag:



Figure 20

Dumping grass out of bag

1. ⚠ Assure engine is not running and cutter blade is not moving.

2. Squeeze lockout lever, move chute door handle fully forward, and release lever into bag latch (Fig. 21). The chute door in mower housing is now closed, and mower is ready for mowing operation.

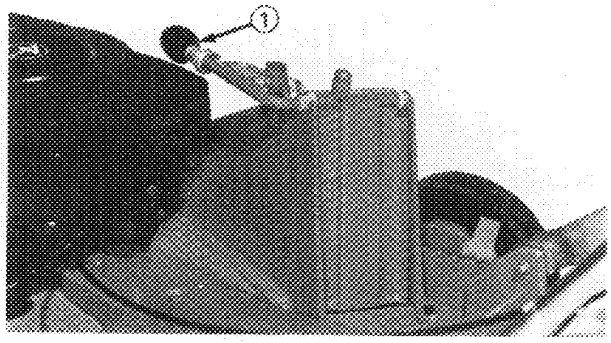

Figure 21

1. Handle forward and door closed

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

DANGER

Never open chute door when mowing without bag installed because grass clippings or other debris will be discharged with enough force to cause personal injury.

MAINTENANCE

CAUTION

To prevent personal injury, use extreme caution when an adjustment or maintenance procedure must be performed while the engine is running. Pull high tension wire off spark plug if engine does not have to be running while performing adjustment or maintenance procedures.

SERVICING AIR CLEANER

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

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

2. Place fingers under right side of cover and lift it up (Fig. 22). Clean inside and outside of cover if it is dirty.

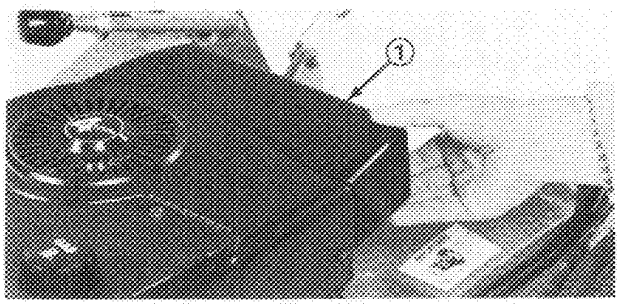

Figure 22

1. Lift to remove cover

3. Look at top of air cleaner element (Fig. 23). If it is dirty, the element must be removed from air cleaner body (Fig. 23) and cleaned.

Note: Take care not to allow dirt to enter air cleaner body.

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

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

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

D. Place element into the air cleaner body (Fig. 23).

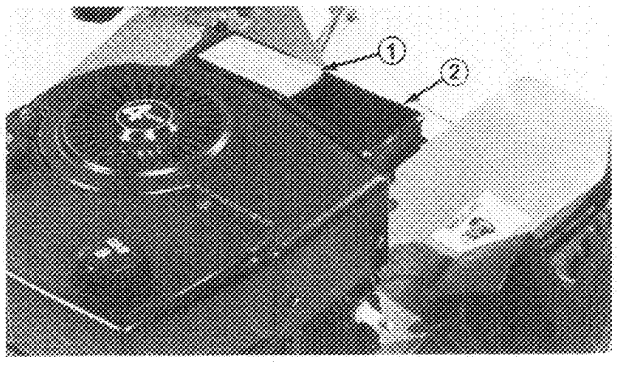

Figure 23

1. Element 2. Air cleaner body

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

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

REPLACE SPARK PLUG

Recommended spark plug to use is a Champion RJ-17LM or equivalent, and correct air gap is 0.030 of an inch (0.762 mm). Since air gap between center and side electrodes of the spark plug increases gradually during normal engine operation, remove plug after every 25 hours of engine operation and check its condition.

1. ⚠ Assure engine is not running. Then pull high tension wire off spark plug.

2. Clean area around spark plug so foreign matter does not fall into cylinder when plug is removed. Remove plug from cylinder head with spark plug socket (Fig. 24).

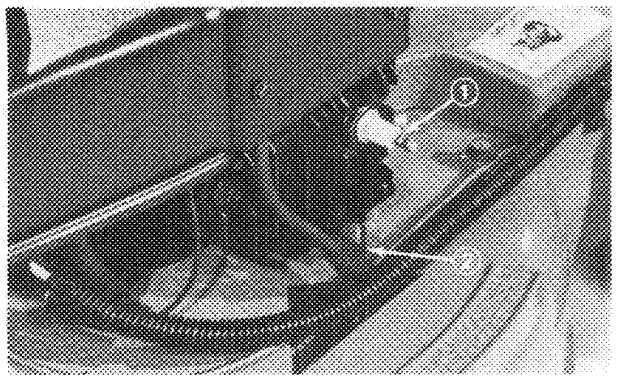

Figure 24

1. Spark plug 2. High tension wire

MAINTENANCE

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

3. Set air gap between electrodes at 0.030 of an inch (0.762 mm) with a spark plug gapping tool (Fig. 25). Install the correctly gapped spark plug with gasket seal and tighten plug to 15 ft-lb (20.4 N·m). If torque wrench is not used, tighten plug firmly.

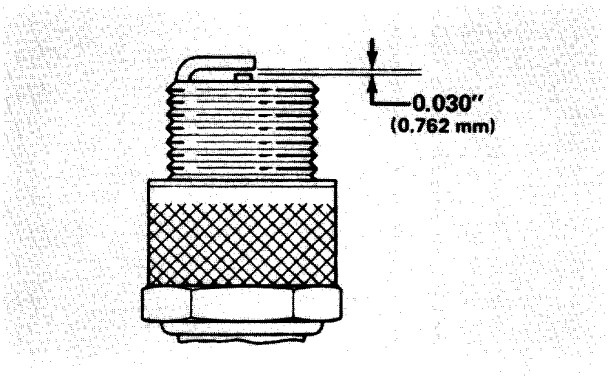

Figure 25

DRAINING GASOLINE

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

2. Place a clean, shallow drain pan below the fuel tank.

3. Squeeze ends of clip holding fuel line on fuel tank fitting (Fig. 26). Slide clip down fuel line.

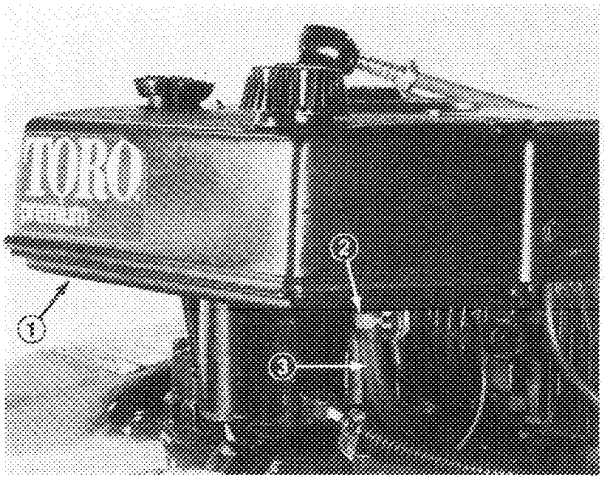

Figure 26

1. Fuel tank
2. Clip
3. Fuel line

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

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

CHANGING CRANKCASE OIL

To prevent possible premature engine failure, change oil after the first 2 hours of engine operation and after every 25 hours thereafter. However, change oil more frequently when engine is operated in dusty or sandy conditions. Since warm oil drains better and carries more contaminants than cold oil, run the engine for a minute or so before changing oil.

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

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

3. Tip mower on its left side, remove drain plug (Fig. 27) from bottom of engine, tip mower down over drain pan and allow oil to drain into pan.

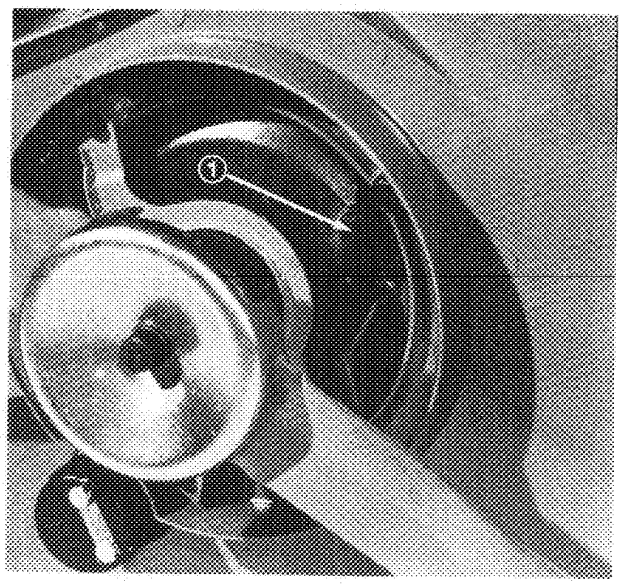

Figure 27

1. Oil drain plug

4. After oil is drained replace oil drain plug and fill engine with oil: refer to step 5.

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

MAINTENANCE

Alternate Method

1. Follow instructions outlined in steps 1, 2 of previous directions.

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

3. Tip mower forward so all oil drains out filler neck and into drain pan (Fig. 28).

Note: Tip down and up again to ensure all oil is drained.

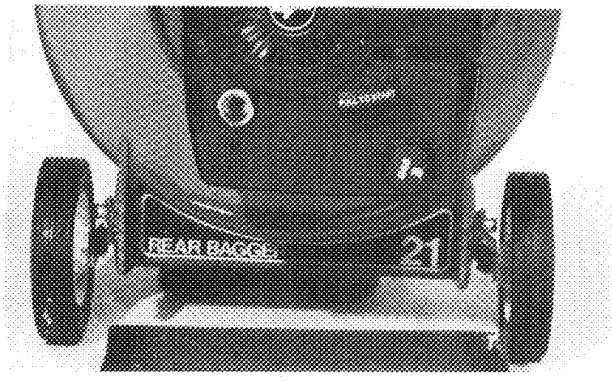

Figure 28

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

INSPECTING CUTTER BLADE FOR DAMAGE

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

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

3. Tip mower on its left side (Fig. 29), which is its spark plug side. Avoid rotating the blade when mower is tipped because starting problems may result.

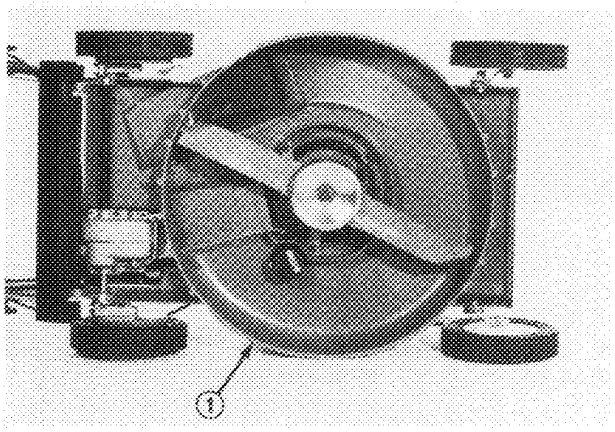

Figure 29

1. Mower tipped on left side

4. Examine cutting ends of the blade carefully, expecially where the flat and curved parts of the blade meet (Fig. 30A). Since sand and abrasive material can wear away the metal that connects the flat and curved parts of the blade, check the blade before using the mower. If any wear is noticed (Fig. 30B), replace the blade: refer to Sharpening or Replacing Cutter Blade.

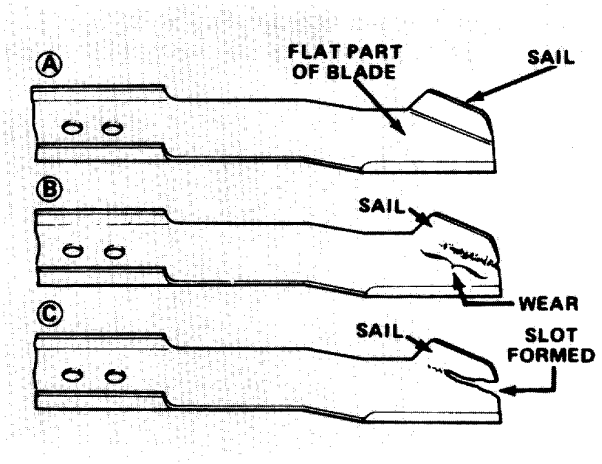

Figure 30

⚠ CAUTION

If the blade is allowed to wear, a slot will form between the sail and flat part of the blade (Fig. 30C). Eventually, a piece of the blade may break off and be thrown from under the housing, possibly resulting in serious injury to yourself or bystander.

SHARPENING OR REPLACING CUTTER BLADE

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

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

3. Tip mower on its left side, which is its spark plug side. Avoid rotating the blade when mower is tipped because starting problems may result.

4. Grasp end of blade using a rag or thickly padded glove. Using a socket or wrench, remove blade bolt and blade.

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

MAINTENANCE

5. Using a file, sharpen cutting edge at both ends of the blade (Fig. 31).

IMPORTANT: Sharpen top side of blade and maintain original cutting angle to assure a sharp cutting edge (Fig. 31). The blade will remain balanced if same amount of material is removed from both cutting edges.

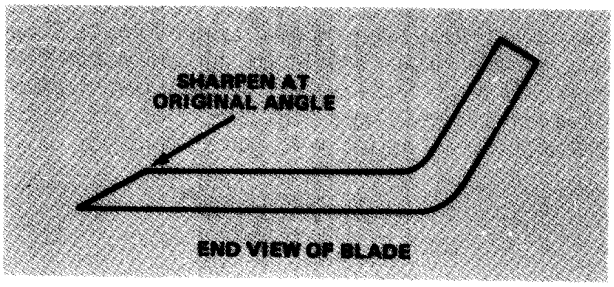

Figure 31

6. Check balance of blade by putting it on a blade balancer. A balanced blade will stay in a horizontal position on the balancer. By contrast, a blade that is not balanced will settle to the heavy side. If blade is not balanced, file more metal off cutting edge on heavy end of the blade. Then check the blade balance again.

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

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

8. Set mower upright.

CLEANING MOWER HOUSING

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

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

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

3. Tip mower on its left side, which is the spark plug side. Avoid rotating the blade when mower is tipped because starting problems may result.

4. Remove grass clippings and dirt that sticks to the housing by spraying it with a garden hose. Scrape out any grass that water does not remove from housing with a hard wood scraper. Take care to avoid any burrs and sharp edges.

5. Set mower upright.

ADJUSTING GROUND SPEED CONTROL

An adjustment of the ground speed control may be required if the ground speed of the mower is incorrect. Whenever a new ground speed control assembly is installed, the control must be adjusted.

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

2. Close door in mower housing and remove bag.

3. Remove two capscrews securing transmission cover and remove cover (Fig. 32).

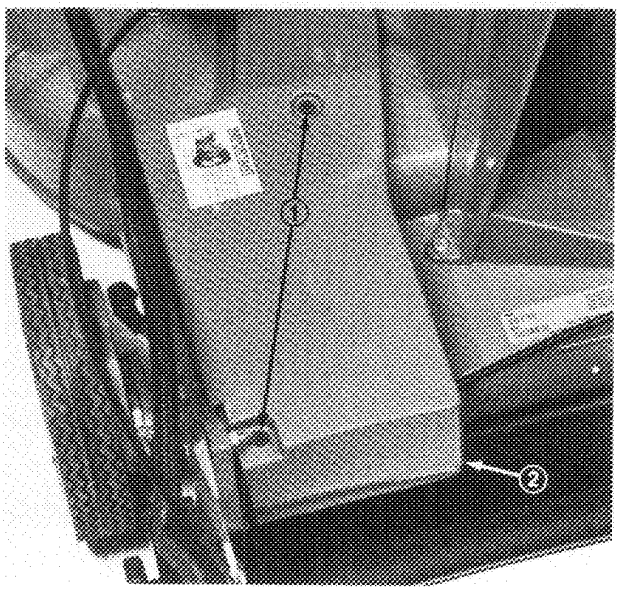

Figure 32

1. Transmission cover mounting capscrews
2. Transmission cover

4. Loosen the capscrew securing the ground speed control cable (Fig. 33, item 1).

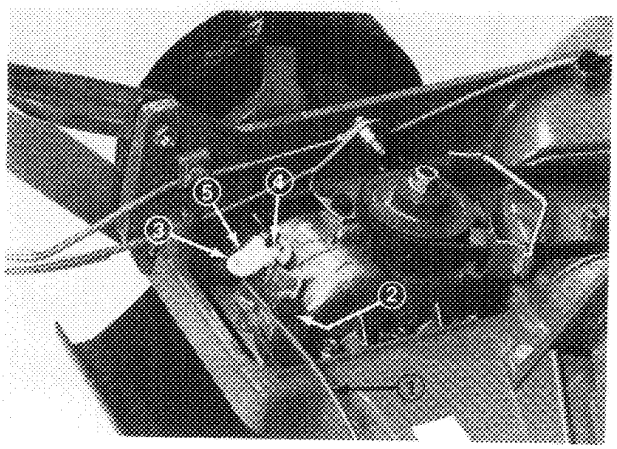

Figure 33

1. Ground speed control cable
2. Capscrew
3. Transmission control lever
4. Roll pin
5. Push towards capscrew

5. Move the ground speed control lever to NEUTRAL (N).

6. Push transmission control lever to right in direction of cable clamping capscrew as far as possible, hold in position and tighten capscrew (Fig. 33).

7. Pull mower rearward with ground speed control in NEUTRAL. Mower should pull back freely without any rotation of pulley on top of gear case. If rotation of pulley occurs, adjustment for NEUTRAL is incorrect. Repeat steps 4-6.

8. Install transmission cover.

ADJUSTING TRACTION CONTROL CABLE

An adjustment of the traction control cable may be required if the loss of traction occurs, or if mower moves without engaging traction drive.

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

2. Close door in mower housing and remove bag.

3. Remove two capscrews securing transmission cover and remove cover (Fig. 32).

4. Loosen capscrew and cable clamp securing traction cable to mower housing (Fig. 34).

5. Pull traction cable rearward through cable clamp approximately 1/4 inch (6 mm) and retighten capscrew.

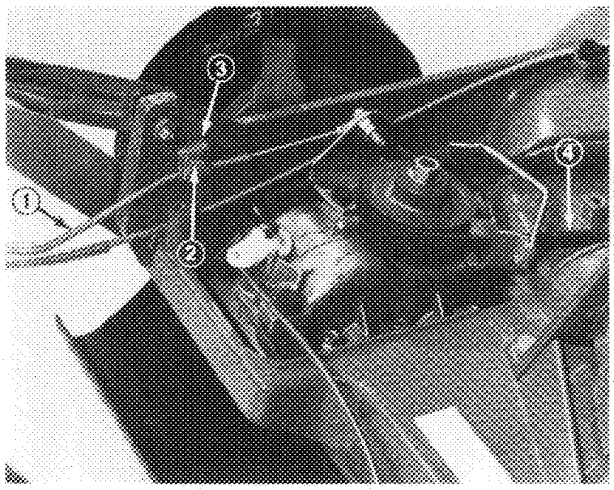

Figure 34

1. Traction cable
2. Capscrew
3. Cable clamp
4. Belt

⚠ CAUTION

Over-adjusting cable may cause mower to move without engaging traction drive.

6. Check traction adjustment by slowly squeezing traction control lever toward upper handle. Traction control lever should be approximately 1/2 inch (13 mm) from upper handle when traction drive belt becomes tight (Fig. 35). If loss of traction still occurs after adjustment, repeat steps 4-6.

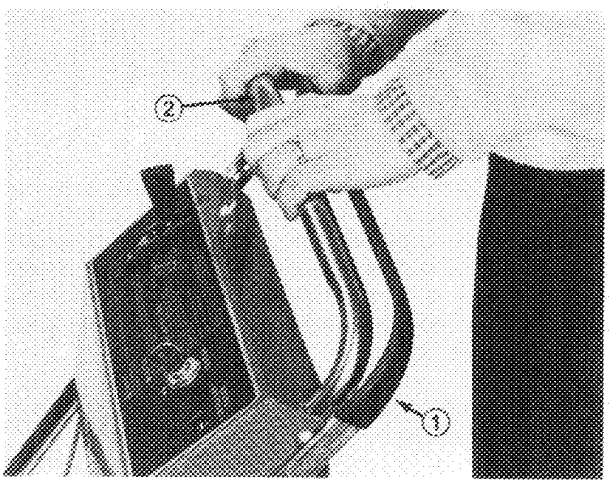

Figure 35

1. Control bar 2. Upper handle

7. Install transmission cover.

⚠ DANGER

Do not attempt to adjust the control cable for the blade brake. Improper adjustment could adversely affect the performance or durability of the mower. Contact your Toro service representative for adjustment.

CHARGING BATTERY

A new battery is not charged. Therefore, if mower must be used immediately, charge the battery for 4 hours to provide enough energy to start engine several times. However, 72 hours of continuous charging are required for full charge. The 72 hour charge of a new battery is recommended for the initial charge, storage charge, and the spring charge.

MAINTENANCE

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

Note: The battery can be charged while it is on or off the mower. To charge battery while it is off the mower, use steps 1-5. To charge battery on the mower, use steps 1, 3, 4, and 5.

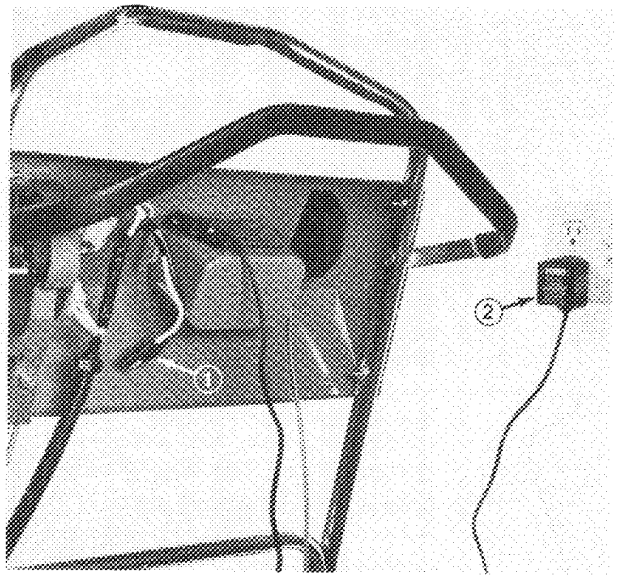

Figure 36

1. Wire harness connector
2. Charger

1. Pull wire harness connector off battery terminal.

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

3. Push Electro Charger connector onto battery terminal (Fig. 36). Next, insert charger into power outlet (Fig. 36).

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

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

PREPARING MOWER FOR STORAGE

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

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

2. Pull high tension wire off spark plug and clean area around the plug so foreign matter cannot fall into cylinder when plug is removed. Remove plug from cylinder head and pour two tablespoons of 10W-40 oil into spark plug hole. Pull recoil starter handle slowly to distribute oil on inside of cylinder. Then install spark plug and tighten it to 15 ft-lb (20.4 N·m). If torque wrench is not used, tighten plug firmly. DO NOT INSTALL HIGH TENSION WIRE ON SPARK PLUG.

3. Drain oil from Crankcase, refer to Changing Crankcase Oil. After all oil is drained, install dipstick but do not fill crankcase with oil until steps 4 through 8 are completed.

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

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

6. Check condition of blade and blade bolt: refer to Inspecting Cutter Blade For Damage.

7. Check and tighten all capscrews, bolts, screws, nuts and mating parts. If any part is damaged, repair or replace it. Inspect grass bag. Replace it if it is damaged or deteriorated.

8. Wash the air cleaner element in a liquid soap detergent and water and add oil to element: refer to Servicing Air Cleaner.

9. Fill crankcase with oil: refer to Fill Crankcase With Oil.

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

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

11. Store the mower in a clean, dry place. For convenience, upper handle can be folded for more compact storage. Make sure control cables are not stretched or kinked when folding handle. Cover the mower to protect it and keep it clean.

Note: Assure upper handle is in proper position and handle knobs are securely tightened before resuming operation.

TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine does not start.	1. Throttle not in start position. 2. Gas tank is empty. 3. Air cleaner element is dirty. 4. Spark plug loose. 5. High tension wire loose or disconnected from spark plug. 6. Spark plug gap is incorrect. 7. Spark plug is defective. 8. Carburetor is flooded with gasoline. 9. Blade bolt is loose. 10. Battery not charged. 11. Blade brake control maladjusted.	1. Move throttle to start. 2. Fill fuel tank with gasoline: refer Fill Fuel Tank With Gasoline. 3. Clean air cleaner element: refer to Servicing Air Cleaner. 4. Tighten spark plug to 15 ft-lb (20.4 N·m). 5. Install high tension wire on plug. 6. Set gap between electrodes at 0.030 of an inch (0.762 mm). 7. Install new, correctly gapped plug: refer to Replacing Spark Plug. 8. Remove air cleaner element and pull starter rope continuously until carburetor clears itself and engine starts. When engine starts, stop it and install air cleaner element. 9. Tighten blade bolt 50 ft-lb (68 N·m). 10. Charge battery: refer to Charging Battery. 11. Contact your Toro Service Representative
Engine starts hard or loses power.	1. Dirt or water in gas tank. 2. Vent hole in fuel tank cap is plugged. 3. Air cleaner is dirty. 4. Blade bolt is loose.	1. Drain gas and clean fuel tank. Fill tank with clean, fresh gasoline: refer to Fill Fuel Tank With Gasoline. 2. Clean or replace fuel tank cap. 3. Clean the air cleaner element: refer to Servicing Air Cleaner. 4. Tighten blade bolt to 50 ft-lb (68 N·m).
Engine operates erratically.	1. Spark plug is defective. 2. Spark plug gapped incorrectly. 3. Air cleaner is dirty.	1. Install new, correctly gapped plug: refer to Replacing Spark Plug. 2. Set gap between electrodes at 0.030 of an inch (0.762 mm). 3. Clean the air cleaner element: refer to Servicing Air Cleaner.
Engine idles poorly.	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.	1. Clean the air cleaner element: refer to Servicing Air Cleaner. 2. Add oil to crankcase: refer to Fill Crankcase With Oil. 3. Remove obstruction from slots. 4. Remove obstruction from cooling fins and air passages.
Engine misfires at high speed.	1. Air gap between electrodes of spark plug is too close.	1. Set air gap at 0.030 of an inch (0.762 mm).

TROUBLE SHOOTING

Problem	Possible Causes	Corrective Action
Engine overheats.	1. Cooling air flow is restricted. 2. Oil level in crankcase is low. 3. Incorrect spark plug. **Note:** Your Toro Service Representative may have to be consulted if any of the above causes have occurred.	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. 3. Install Champion RJ-17LM spark plug that is gapped at 0.030 of an inch (0.762 mm).
Mower vibrates abnormally.	1. Blade bolt is loose. 2. Cutter blade is unbalanced.	1. Tighten blade bolt to 50 ft-lb (68 N·m). 2. Sharpen cutter blade and check the balance: refer to Sharpening or Replacing Cutter Blade. Replace the blade if it cannot be balanced.
No traction drive.	1. Group speed control maladjusted or broken. 2. Transmission drive belt loose or broken. 3. Traction Control Handle cable maladjusted or broken. 4. Damaged wheel and pinion gear assembly. 5. Malfunction in transmission assembly. **Note:** Your Toro Service Representative may have to be consulted if items 2-5 have occurred.	1. Adjust ground speed control: refer to Adjusting Ground Speed Control. 2. Adjust belt tension or replace belt. 3. Adjust or replace cable. 4. Repair as necessary. 5. Repair as necessary.
Mower creeps forward – traction control handle disengaged	1. Debris caught between mower housing and transmission. (Belt under tension). 2. Traction belt over-tensioned, i.e., belt not loose enough when disengaged.	1. Remove transmission cover and clear debris away: refer to Figure 35. 2. Relieve belt tension. Adjust Traction Control Cable: refer to Adjusting Traction Control Cable, or contact your Toro Service Representative