

MODEL NO. 30117 — 1000001 &amp; UP

**OPERATOR'S  
MANUAL****117 COMMERCIAL WALK MOWER**

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



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



# FOREWORD

The commercial walk mowers have advanced concepts in engineering, design and safety; and if maintained properly, will give excellent service.

Since they are high-quality products, Toro is concerned about the future use of the machines and safety of the user. Therefore, read this manual to familiarize yourself with proper set-up, operation and maintenance instructions. The major sections of the manual are:

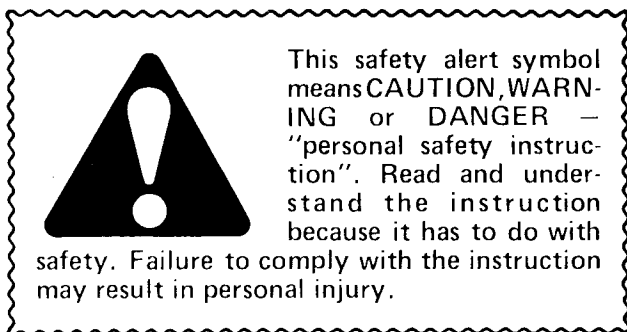
1. Safety Instructions
2. Set-up Instructions
3. Before Operating
4. Maintenance

Certain information in this manual is emphasized. DANGER, WARNING and CAUTION identify personal safety-related information. IMPORTANT identifies mechanical information demanding special attention. Be sure to read this directive because it deals with the possibility of damaging a part or parts of the machine. NOTE identifies general information worthy of special attention.

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## SAFETY INSTRUCTIONS



The Commercial Walk Mower was tested and certified by TORO for compliance with the B71.4 — 1984 specifications of the American National Standards Institute. Although hazard control and accident prevention partially are dependent upon the design and configuration of the machine, these factors are also dependent upon the awareness, concern, and proper

training of the personnel involved in the operation, transport, maintenance, and storage of the machine. Improper use or maintenance of the machine can result in injury or death. To reduce the potential for injury or death, comply with the following safety instructions.

### BEFORE OPERATING

1. Read and understand the contents of this Operator's Manual before operating the machine.

Become familiar with all controls and know how to stop quickly. A free replacement manual is available by sending complete Model and Serial Number to:

The Toro Company  
8111 Lyndale Avenue South  
Minneapolis, Minnesota 55420

# SAFETY INSTRUCTIONS

2. Do not allow children to operate the machine. Do not allow adults to operate the machine without proper instruction.
3. Never operate machine when under the influence of drugs or alcohol.
4. Before attempting to start engine, shift into neutral, move deck engagement switch into DIS-ENGAGE position and lock parking brake.
5. Remove all debris or other objects that might be picked up and thrown by the cutter blades. Keep all bystanders away from the mowing area.
6. Keep all shields and safety devices in place. If a shield, safety device or decal is illegible or damaged, repair or replace it before operation is commenced. Also tighten any loose nuts, bolts and screws to assure machine is in safe operating condition.
7. Do not operate machine while wearing sandals, tennis shoes, sneakers or shorts. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses, safety shoes and a helmet is advisable and required by some local ordinances and insurance regulations.
8. Fill fuel tank with gasoline before starting the engine. Avoid spilling gasoline. Since gasoline is flammable, handle it carefully.
  - A. Use an approved gasoline container.
  - B. Do not fill tank while engine is hot or running.
  - C. Do not smoke while handling gasoline.
  - D. Fill fuel tank outdoors and up to about one inch (25 mm) from top of the tank, not the filler neck.
  - E. Wipe up any spilled gasoline.
12. The grass deflector must always be installed and in down position on the side discharge cutting unit, except when using optional grass catcher. This product is designed to drive objects into the ground where they lose energy quickly in grassy areas. However, don't take an injury risk!! When a person or pet appears unexpectedly in or near the mowing area, STOP MOWING. Careless operation, combined with terrain angles, ricochets, or improperly positioned guards, can lead to thrown object injuries. Do not resume mowing until area is cleared.
13. Never raise the cutting unit while the blades are rotating.
14. If the cutting blades strike a solid object or the machine vibrates abnormally, shut the engine off. Remove spark plug wire(s) from spark plug(s) to prevent possibility of accidental starting. Check cutting unit and traction unit for damage and malfunctioning parts. Repair any damage before re-starting the engine and operating the cutting unit. Be sure blades are in good condition and blade bolts are tight.
15. Cut grass slopes carefully. Do not start, stop, or turn suddenly.
16. Do not touch engine or muffler while engine is running or soon after it is stopped. These areas could be hot enough to cause a burn.
17. Before leaving the operator's position — behind handle or leaving mower unattended, shift transmission into NEUTRAL, apply parking brake, move deck engagement switch to OFF, and shut OFF engine.

## WHILE OPERATING

9. Start engine when parking brake is set, blade is disengaged, and transmission is in neutral.
10. Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could possibly be deadly.
11. Using the machine demands attention, and to prevent loss of control:
  - A. Mow only in daylight or when there is good artificial light.
  - B. Watch for holes or other hidden hazards.
  - C. Do not drive close to a sand trap, ditch, creek or other hazard.
  - D. Reduce speed when making sharp turns and when turning on hillsides.

## MAINTENANCE

18. Disconnect spark plug wire(s) from spark plugs to prevent accidental starting of the engine when servicing, adjusting or storing the machine.
19. If tractor and mower must be tipped to perform maintenance or an adjustment, drain gasoline from fuel tank and oil from crankcase.
20. When driving unit forward, always use upper "Forward" traction drive handle. When backing up, always use lower "Reverse" traction drive handle.
21. To reduce potential fire hazard, keep the engine free of excessive grease, grass, leaves and accumulations of dirt.
22. Be sure machine is in safe operating condition by keeping nuts, bolts and screws tight. Check the blade mounting bolts and nuts frequently to be sure they are tightened to specification.

# SAFETY INSTRUCTIONS

23. If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing and other parts of the body away from the cutting unit blades and other moving parts.

24. Do not overspeed the engine by changing governor settings. To be sure of safety and accuracy, have an Authorized TORO Proline Service Dealer check maximum engine speed with a tachometer.

25. Engine must be shut off before checking oil or adding oil to the crankcase.

26. Allow engine to cool before storing mower in any enclosure such as a garage or storage shed. Make sure the mower fuel tank is empty if machine is to be stored in excess of 30 days. Do not store mower near any open flame or where gasoline fumes may be ignited by a spark. Always store gasoline in a safety-approved, red metal container.

27. Perform only those maintenance instructions described in this manual. If major repairs are ever

needed or assistance is desired, contact an Authorized Toro Proline Service Dealer. To ensure optimum performance and safety, always purchase genuine TORO replacement parts and accessories to keep the Toro all TORO. NEVER USE "WILL-FIT" REPLACEMENT PARTS AND ACCESSORIES MADE BY OTHER MANUFACTURERS. Look for the TORO logo to assure genuineness. Using unapproved replacement parts and accessories could void the warranty of The Toro Company.

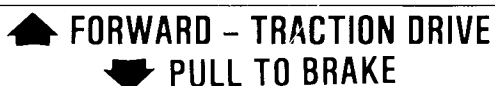
## CAUTION

1. KEEP ALL SHIELDS IN PLACE.
2. BEFORE LEAVING OPERATOR'S POSITION.
  - A. MOVE TRANSMISSION TO NEUTRAL.
  - B. SET PARKING BRAKE.
  - C. DISENGAGE DECK ENGAGEMENT CLUTCH.
  - D. SHUT OFF ENGINE.
3. WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING MACHINE.
4. KEEP BYSTANDERS FROM AREAS BEING MOWED.



## SAFETY AND INSTRUCTION DECALS

The following decals are installed on the machine. If any become damaged or illegible, replace it. The decal part number is listed below and in your parts catalog. Replacement can be ordered from your Authorized Toro Distributor.



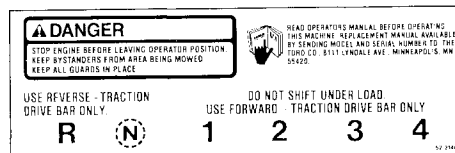
ON UPPER CONTROL BAR  
(Part No. 54-2740)



ON LOWER CONTROL BAR  
(Part No. 52-2120)



ON CONTROL PLATE  
(Part No. 74-0840)



ON CONTROL PANEL  
(Part No. 52-2140)



ON REAR FRAME  
(Part No. 74-0490)



ON ENGINE  
(Part No. 63-8440)

# SPECIFICATIONS

**Kohler Engine:** 4 cycle, air cooled, electric start, gasoline engine has output of 16 hp @ 3600 rpm and 28 ft-lb torque @ 2300 rpm. Displacement is 42.18 cubic inches. Crankcase oil capacity is 3-1/2 pints w/filter. Correct spark plug is a Champion RV 15YC or equivalent. Air gap setting is 0.025 in.

**Frame:** 11 ga. formed steel box with 1 in. dia. axle with 1/4 x 4 U-strap rear frame bolted to frame.

**Wheels and Tires:** 6.5 x 13 pneumatic tires are mounted on welded steel wheels which have greaseable ball bearings. Recommended tire pressure is 15 psi.

**Transmission:** Permanently lubricated and fully enclosed gear box. In line shift pattern with 4 forward speeds, neutral and reverse.

**Traction Drive Belts:** A-section, V-belt with 3 in. dia. take up idler to gear box from engine. 2 rib A-section banded belt to each wheel from gear box output shafts.

## Gear Drive Reduction:

1st gear — 7.0	4th gear — 3.0
2nd gear — 4.5	Rev. — 6.0
3rd gear — 3.5	

## Ground Speed @ 3200 Engine rpm:

1st gear — 1.9 MPH	4th gear — 4.5 MPH
2nd gear — 3.0 MPH	Rev. 2.2 MPH
3rd gear — 3.9 MPH	

**Optional Accessories:** Sulky attachment, Model #30122.

# LOOSE PARTS

**Note:** Use this chart as a checklist to assure all parts have been received. Without these parts, total set-up cannot be completed.

DESCRIPTION	QTY.	USE
Upper Handle	1	Install upper handle to frame.
Flange Capscrew 3/8-16 x 1" lg.	4	
Flangenut 3/8-16	4	
Shift Lever	1	Install shift lever to transmission.
Shift Lever Mounting Block	1	
Plain Washer	1	
Lockwasher — 1/4"	1	
Capscrew 1/4-28 x 2" lg.	1	
R-Clamp	1	Secure Choke Cable
Locknut — #10-32	1	Secure wire harness.
Locknut — 1/4-20	1	
Wire Tie	2	
Rod Fitting	2	Install Control Rods.
Clevis Pin	2	
Washer	2	
Hairpin Cotter	2	
Fuel Tank	1	Install Fuel Tank and Control Panel.
Control Panel	1	
Capscrew 5/16-18 x 7/8" Lg.	4	
Lockwasher 5/16	4	
Flatwasher 5/16	4	
Hose Clamp	1	
Battery	1	Install battery.
Battery Holder	2	
Capscrew 3/8-16 x 1.75"	2	
Locknut 3/8-16	2	
Battery Strap	1	
Battery Support Rod	2	
Wing Nut 1/4-20	2	
Battery Pad	2	
Battery Cover	1	
Carriage Bolt 5/16-18	2	
Locknut 5/16-18	2	
Battery Cable — Positive	1	
Battery Cable — Negative	1	
Key	2	
Operators Manual	1	Read manual before operation. Fill out and return to Toro.
Registration Card	1	
Commercial Product Setup Report	1	

# SET UP INSTRUCTIONS

## MOUNT FUEL TANK AND CONTROL PANEL

1. Position fuel tank onto rear frame aligning mounting holes as shown in Fig. 1.

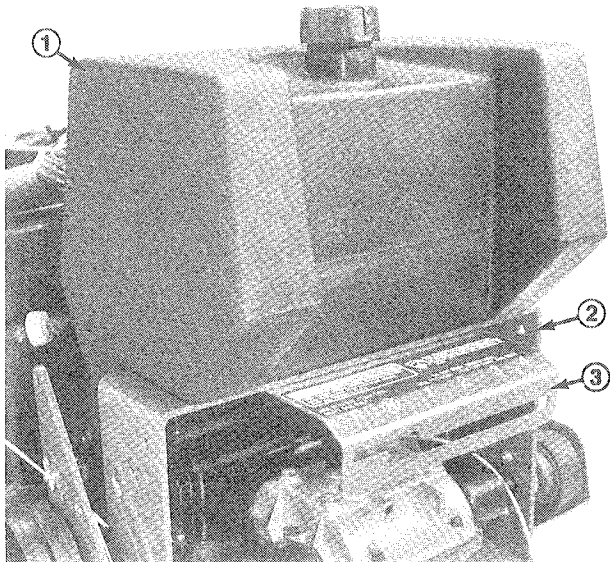


Figure 1

1. Fuel tank
2. Rear frame
3. Control panel

2. Loosely mount control panel to bottom of rear frame and fuel tank with (4) capscrews, lockwashers and washers (Fig. 1 & 2). Do not tighten capscrews at this time.

3. Secure fuel line to tank fitting with hose clamp (Fig. 2).

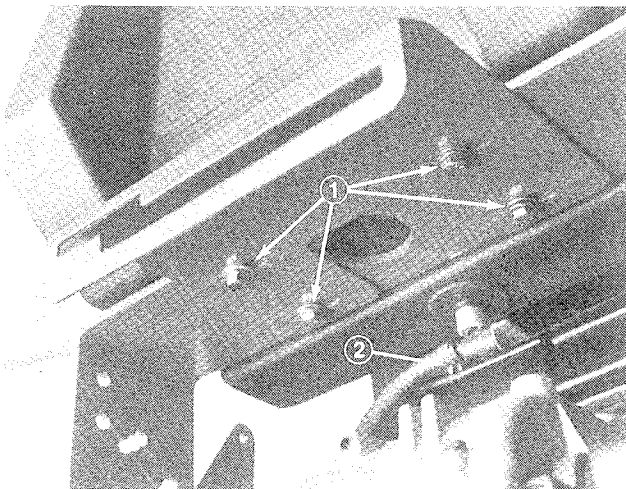


Figure 2

1. Capscrews, lockwashers & washers
2. Fuel line hose clamps

## INSTALL SHIFT LEVER

1. Position shift lever mounting block onto shaft on top of transmission. DO NOT remove rubber washer on transmission.

2. Insert shift lever thru slot in control panel and align mounting hole in lever with mounting block on transmission. Secure lever to transmission with 1/4-28 x 2" lg. capscrew, lockwasher and plain washer. Torque capscrew to 100-125 in. lb. (Fig. 3).

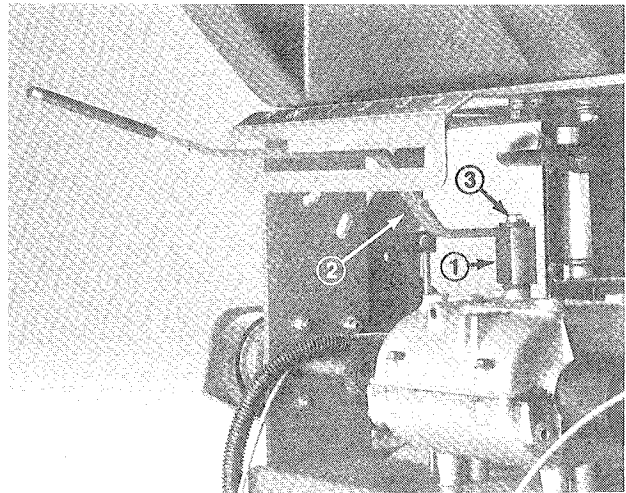


Figure 3

1. Shift lever mounting block
2. Shift lever
3. Capscrew, lockwasher & washer

3. Move shift lever to reverse and 4th gear. Control panel mounting holes are slotted to enable it to be moved from side to side (Fig. 2). Position control panel as needed to achieve full shift range. Tighten mounting screws to a maximum of 90 in-lb. **DO NOT OVERTIGHTEN.**

## INSTALL UPPER HANDLE

1. Align upper handle mounting holes with desired mounting holes in frame and secure each side with (2) 3/8-16 x 1" lg. flange capscrews and flangenuts (Fig. 4).

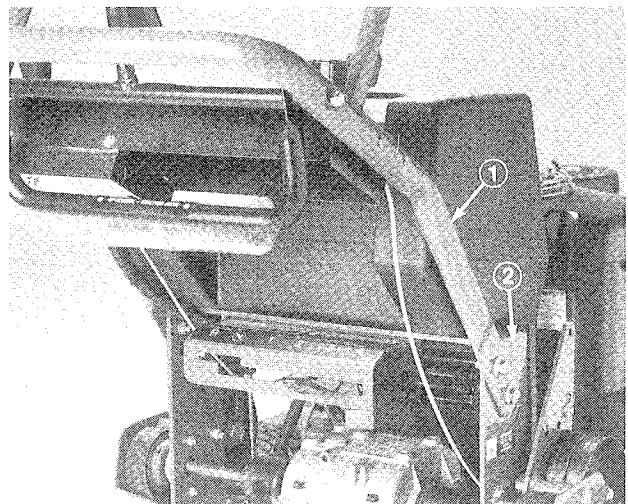


Figure 4

1. Upper handle
2. Frame



# SET UP INSTRUCTIONS

## CONNECT THROTTLE CABLE

1. Position remote throttle control lever forward until there is approximately 1/8" between lever and front end of slot in control base.
2. Route throttle cable around left side of engine, behind carburetor on front of engine and hook cable end into bottom hole in governor arm (Fig. 5 & 6).

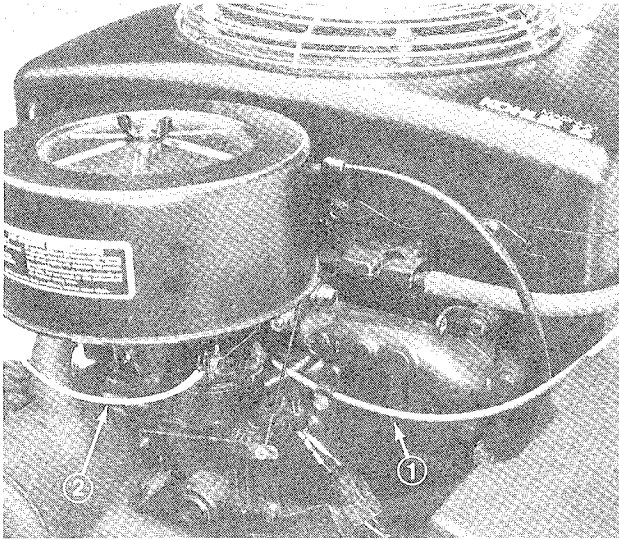


Figure 5

1. Throttle cable
2. Choke cable

3. Loosen cable clamping screw allowing cable installation, but do not tighten (Fig. 6).
4. Pull firmly on throttle cable till governor arm contacts stop and tighten cable clamping screw (Fig. 6).

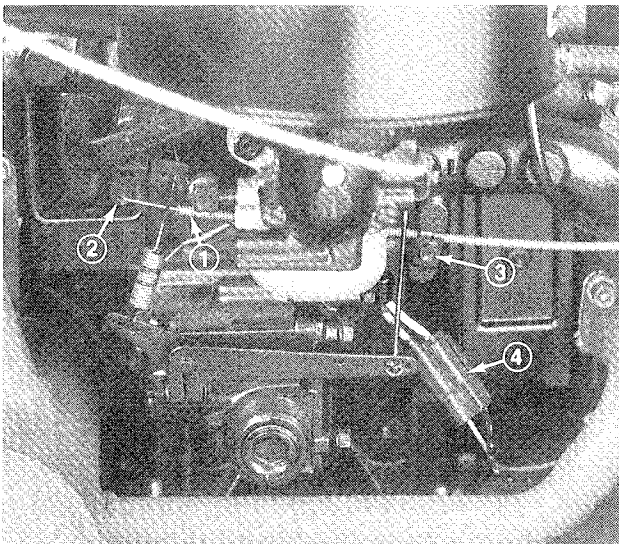


Figure 6

1. Throttle cable
2. Governor arm
3. Cable clamp
4. Wire harness connectors

## CONNECT CHOKE CABLE

1. Position remote choke control in full choke position.
2. Route choke cable around left side of engine and hook cable end into hole in carburetor choke lever (Fig. 5 & 7).

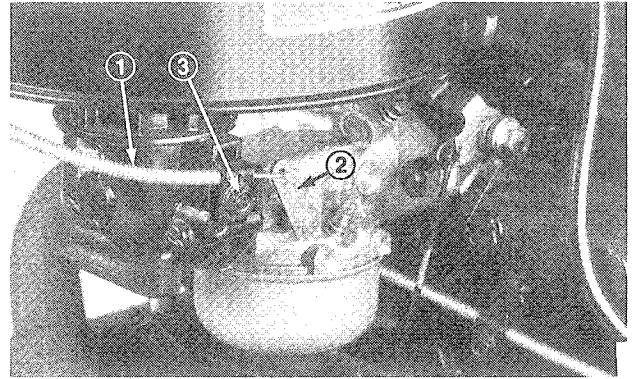


Figure 7

1. Choke cable
2. Choke lever
3. Cable clamp

3. Loosen cable clamping screw allowing cable installation, but do not tighten (Fig. 7).
4. Pull firmly on choke cable and tighten cable clamp screw (Fig. 7).
5. Secure choke cable to right side of engine with R-clamp, using engine cover mounting bolt.

## CONNECT WIRE HARNESS

1. Route harness around left side of engine and secure male and female connectors at front of engine (Fig. 6).
2. At left side of engine, secure male and female clutch connectors (Fig. 8).

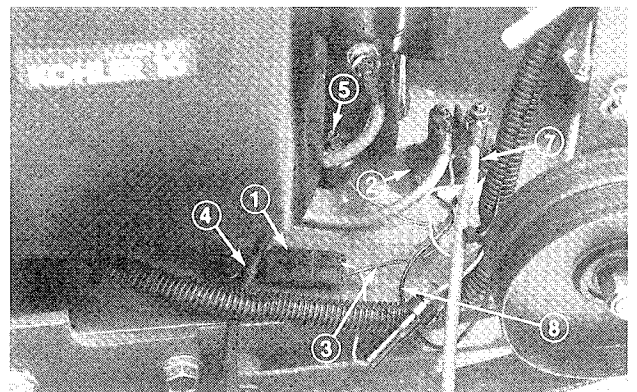


Figure 8

1. Clutch connectors
2. Starter solenoid
3. Ring terminal wire
4. Negative battery cable
5. Engine mounting bolt
6. Remaining wire
7. Positive battery cable
8. Small ring terminal wire

# SET UP INSTRUCTIONS

3. Remove locknut from left rear engine mounting bolt. Secure negative, black battery cable and ring terminal wire from clutch connector to left rear engine mounting bolt with locknut removed (Fig. 8).
4. Secure remaining ring terminal wire from wire harness and Positive, red battery cable to rear terminal of starter solenoid with a 1/4 — 20 locknut (Fig. 8).
5. Secure small ring terminal wire to back end of starter solenoid with a #10-32 locknut.
6. Secure wire harness, throttle cable, and fuel line together with (2) wire ties as shown in Figure 9.

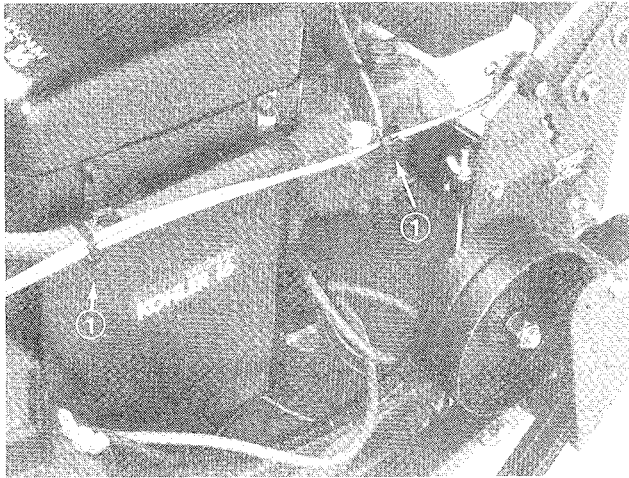


Figure 9  
1. Cable tie

## INSTALL CONTROL RODS

1. Thread a rod fitting onto each control rod approximately 2" (Fig. 10).
2. Mount rod fitting ends to mounting holes in idler brackets (from outside) with clevis pins, washers and hairpin cottes (Fig. 10).

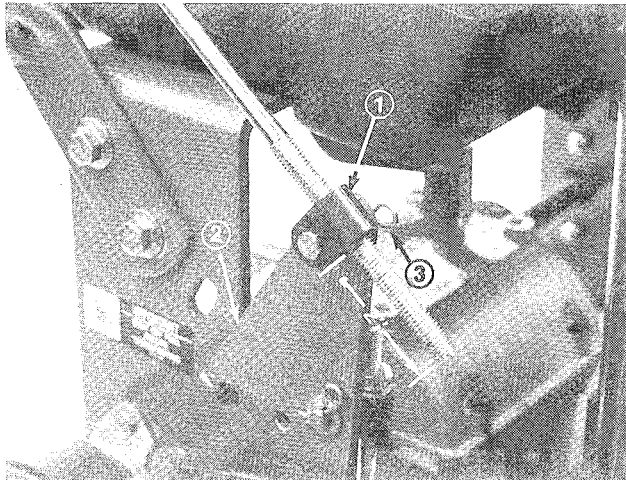


Figure 10  
1. Control rod fitting  
2. Idler brackets  
3. Clevis pin, washer & hairpin cotter

Note: The control bar and upper handle must be parallel when in relaxed drive and brake positions.

3. Check gap between control bar and upper handle when fully engaging wheel belts. Gap should be approximately 1 to 1-1/4" (Fig. 11).

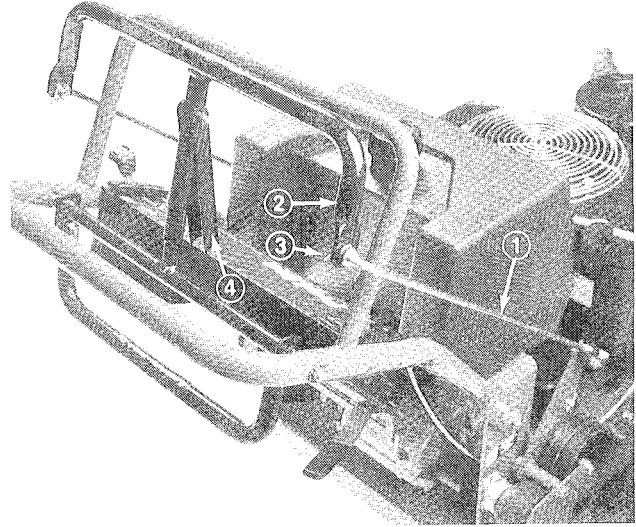


Figure 11

- |                      |                            |
|----------------------|----------------------------|
| 1. Control rod       | 3. Washer & hairpin cotter |
| 2. Upper control bar | 4. Parking brake lever     |

4. Check operation. If adjustment is required, remove hairpin cotter and washer securing end of control rod to upper control bar, thread rod into or out of rod fitting to proper position and reinstall to control bar with washer and hairpin cotter.

5. Brake rods should be adjusted so parking brake lever can be swung into a snug position against the upper handle while pulling back on upper control bar (Fig. 11).

6. If an adjustment to brake rods is required, remove hairpin cotter and washer securing brake rod fitting to idler bracket (Fig. 12).

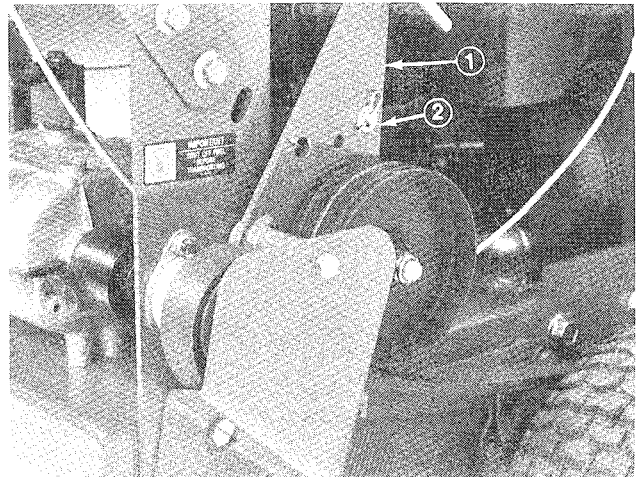


Figure 12

- |                  |   |
|------------------|---|
| 1. Idler bracket | 2. Hairpin cotter, washer & brake rod fitting |
|------------------|---|



# SET UP INSTRUCTIONS

7. Thread fitting down rod and resecure to idler bracket. Check adjustment and readjust if necessary.

8. Repeat procedure on opposite side if adjustment is required.

## INSTALL BATTERY

1. Mount battery holders to left rear corner of cutting unit carrier frame with (2) 3/8-16 x 1.75" capscrews and locknuts (Fig. 13).

2. Peel off backing from battery pads and affix pads to battery holder, positioning as shown in Fig. 13.

3. Fill battery with electrolyte and charge, refer to ACTIVATING AND CHARGING BATTERY, page 10.

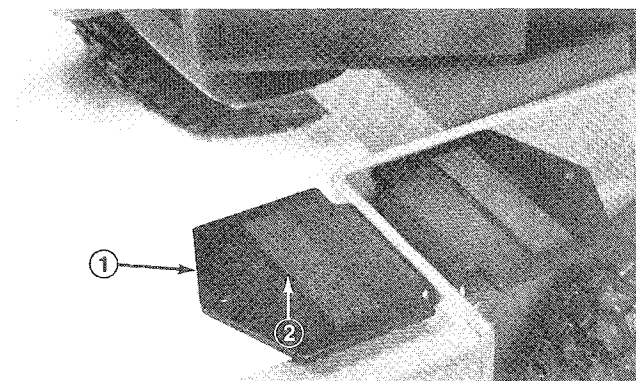


Figure 13

- 1. Battery holders
- 2. Battery pads

4. Position battery onto holders with terminal posts toward engine (Fig. 14).

5. Install the positive cable to the positive (+) terminal and the negative cable (black) to the negative (-) terminal of the battery and secure with carriage bolts and locknuts.

6. Mount battery to holders with battery strap, (2) support rods, battery cover and (2) 1/4-20 wing nuts as shown in Fig. 14.

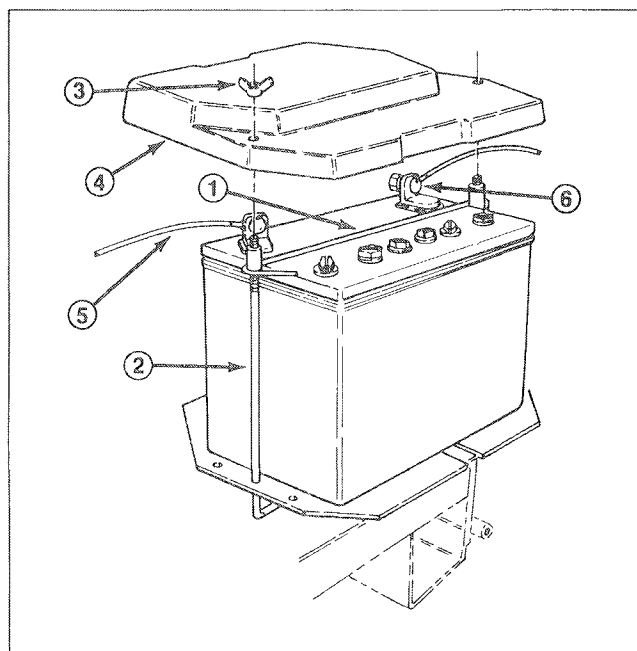


Figure 14

- 1. Battery strap
- 2. Support rod
- 3. Wing nut
- 4. Cover
- 5. Negative terminal
- 6. Positive terminal

# BEFORE OPERATING

## ACTIVATING AND CHARGING BATTERY (12 VOLT)

Since the battery for the mower is not filled with electrolyte or activated, the battery, if you have not already done so, must be removed from the machine so it can be filled with electrolyte and charged. Bulk electrolyte with 1.260 specific gravity must be purchased from a local battery supply outlet. Remove the battery and activate it as follows:



### CAUTION

Wear safety goggles and rubber gloves when working with electrolyte. Charge the battery in a well ventilated place so gases produced while charging can dissipate. Since the gases are explosive, keep open flame and electrical spark away from the battery; do not smoke. Nausea may result if the gases are inhaled. Unplug charger from electrical outlet before connecting to or disconnecting charger leads from battery posts.

1. Remove filler caps from battery and slowly fill each cell until electrolyte is just above the plates. To obtain best results, let battery set for 20 minutes. Add electrolyte to the maximum capacity.
2. Leave filler caps off and connect a 3 to 4 amp battery charger to the battery posts. Charge the battery at a rate of 4 amperes or less for 4 hours.
3. When battery is charged, disconnect charger from electrical outlet and battery posts.
4. Slowly add electrolyte to each cell until level is up to fill ring. Install filler caps.

**IMPORTANT:** Do not overfill battery. Electrolyte will overflow onto other parts of the machine and severe corrosion and deterioration will result.

## 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 (Fig. 15).

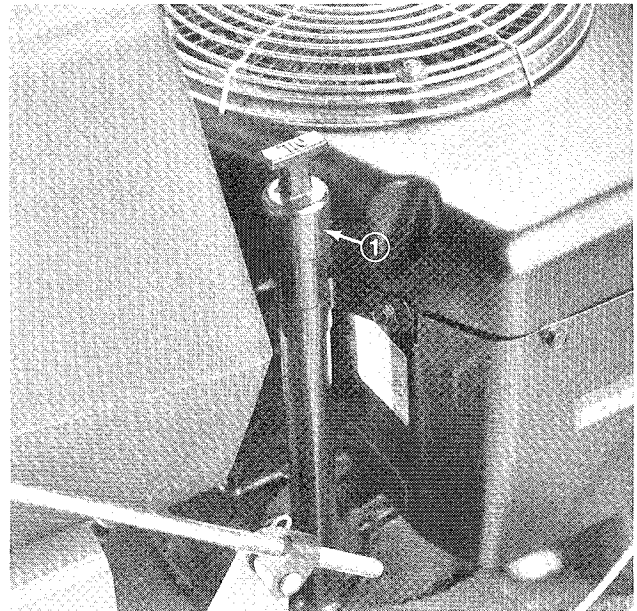


Figure 15

1. Dipstick

4. Slowly pour approximately 3-1/2 pints w/filter of oil into the filler neck. Oil viscosity (weight) must be selected according to anticipated ambient temperature.
  - A. Above +32° F (0° C) — Use only SAE 30.
  - B. Between +32° F (0° C) and 0° F (-18° C) — Use SAE 10W30 or 10W40.
  - C. Below +32° F (0° C) — Use 5W20 or 5W30.

**Note:** Avoid premature engine failure by insuring the funnel used is clean so contaminants are not introduced into the crankcase. Wipe any oil spilled, so it will not cause dirt to collect on the engine.

5. Insure the oil level is to the "F" mark on the dipstick when it is fully installed. Do not overfill or engine damage may result.
6. Insert the dipstick and push it all the way down into fill tube.

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

## CHECK TIRE PRESSURE

Tires are over inflated at the factory. Check tires and insure they are inflated to 15 psi.

# BEFORE OPERATING

## FILL FUEL TANK WITH GASOLINE

THE TORO COMPANY STRONGLY RECOMMENDS THE USE OF CLEAN, FRESH **UNLEADED** REGULAR 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.

**NOTE: NEVER USE METHANOL, GASOLINE CONTAINING METHANOL, GASOLINE CONTAINING MORE THAN 10% ETHANOL, GASOLINE ADDITIVES, PREMIUM GASOLINE, OR WHITE GAS BECAUSE ENGINE FUEL SYSTEM DAMAGE COULD RESULT.**

1. Clean area around fuel tank cap and remove cap from tank.
2. Fill fuel tank to within 1/2 inch (12.7 mm) from the bottom of the filler neck. Install fuel tank cap securely.
3. Wipe up spilled gasoline.



### 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 gasoline, keep it out of their reach because the fumes are explosive and dangerous to inhale.

## CONTROLS

**Throttle Control (Fig. 16)** — The throttle control has two positions: FAST and SLOW.

**Choke Control (Fig. 16)** — The Choke Control has two positions: CHOKE and RUN.

**Deck Engagement Switch (Fig. 16)** — Toggle switch releases blade brake and engages electromagnetic clutch to drive deck pulleys.

**Gear Shift Lever (Fig. 16)** — Transmission has four forward speeds, neutral and reverse, and has an inline shift pattern. Do not shift while unit is moving, as transmission damage may occur.

**Upper Control Bar (Fig. 16)** — Shift to desired gear and push forward on control bar to engage forward traction operation and pull back to brake. Pull right side of control bar to turn right and left side to turn left.

**Lower Control Bar (Fig. 16)** — Shift transmission to reverse and pull rearward on lower control bar to engage rearward traction operation.

**Parking Brake Lever (Fig. 16)** — Pull back on upper control bar and swing brake lever up against the upper handle.

**Ignition Switch (Fig. 16)** — Switch is part of battery ignition system, and it has three positions: OFF, RUN and START. Key automatically returns to RUN posi-

tion from START position when released after engine starts.

**Fuel Shut-off Valve** — (Under fuel tank) Close fuel shut-off valve when transporting or storing mower.

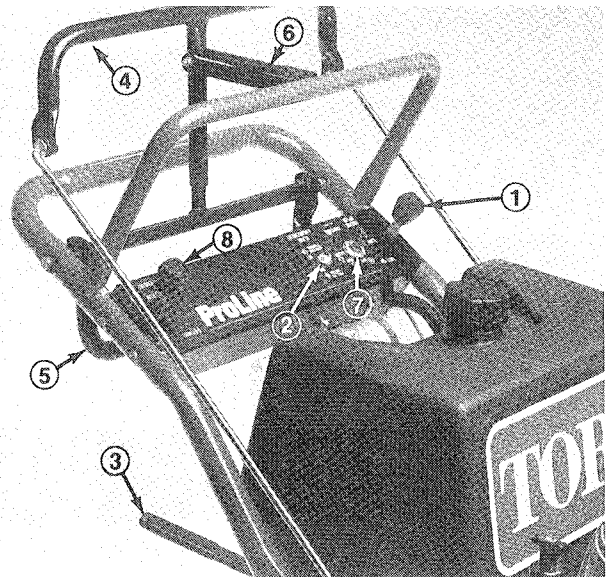


Figure 16

- |                            |                        |                    |
|----------------------------|------------------------|--------------------|
| 1. Throttle control        | 4. Upper control bar   | 7. Ignition switch |
| 2. Deck engagements switch | 5. Lower control bar   | 8. Choke control   |
| 3. Gear shift lever        | 6. Parking brake lever |                    |

# OPERATING INSTRUCTIONS

## STARTING AND STOPPING

1. Make sure spark plug wires are installed on spark plugs and fuel valve is open.
2. Shift into neutral, move deck engagement switch to OFF, and turn ignition key to RUN.

**Note:** Engine will not start with deck engagement switch in ON position.

3. Move throttle control to half throttle position.
4. Move choke control to CHOKE position before starting a cold engine.

**Note:** A warm or hot engine usually does not require as much choking.

5. Rotate ignition key to START. When engine starts, release key, gradually move choke to run position and regulate throttle to desired speed.

**IMPORTANT:** To prevent overheating of the starter motor, do not engage starter longer than 10 seconds. After 10 seconds of continuous cranking, wait 60 seconds before engaging starter motor again.

5. To stop engine, release control bar, move deck engagement switch to OFF, switch to Neutral and move throttle to SLOW, turn ignition key to OFF and wait for all parts to stop moving before leaving the operating position behind handle.

6. Pull wires off spark plugs to prevent possibility of accidental starting before storing machine.

7. Close fuel shut off valve before storing machine.

**IMPORTANT:** Make sure fuel shut off valve is closed before transporting or storing machine as fuel leakage may occur.

## MAINTENANCE



### CAUTION

To prevent accidental starting of the engine while performing maintenance, shut engine off. Also, pull wires off spark plugs. Make sure wire does not contact plug accidentally.

## GREASE WHEELS

Lubricate the wheel bearings every 8 hours w/No. 2 general purpose grease. Wipe up any excess grease.

## GREASE TRANSMISSION COUPLERS

Lubricate the transmission couplers (Fig. 17) every 250 hours with w/No. 2 general purpose grease. Pump grease gun about 4 times. Wipe up any excess grease.

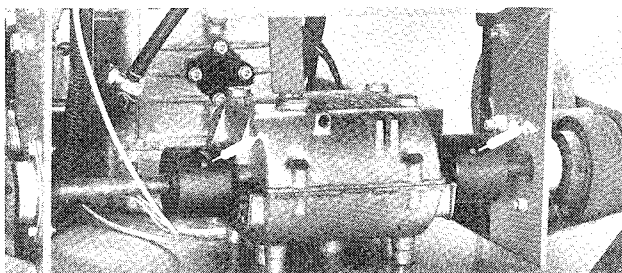


Figure 17

## SERVICING AIR CLEANER

The foam pre-cleaner must be cleaned and re-oiled after every 25 hours engine operation if engine is operated in clean air conditions. However, air cleaner must be cleaned every few hours if operating conditions are extremely dusty or sandy.

1. Remove wing nut and cover (Fig. 18).



Figure 18

1. Wing nut
2. Cover

# MAINTENANCE

2. Remove foam pre-cleaner by sliding it off the paper element (Fig. 19).

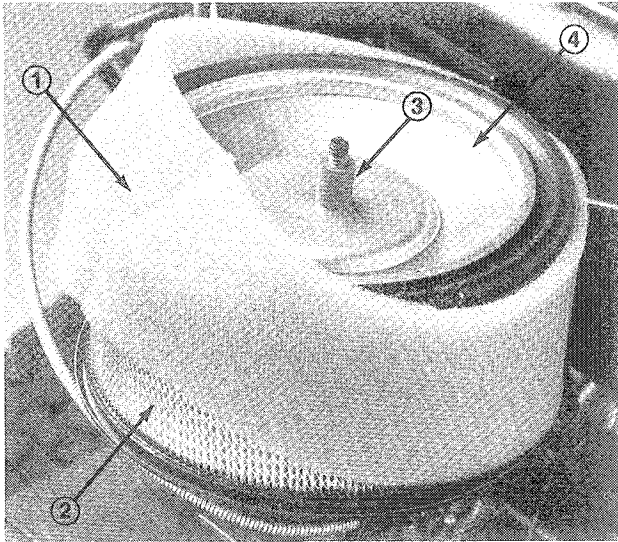


Figure 19

- |                     |                  |
|---------------------|------------------|
| 1. Foam pre-cleaner | 3. Cover seal    |
| 2. Element          | 4. Element cover |

3. A. Wash foam pre-cleaner in detergent and warm water.  
B. Rinse the pre-cleaner thoroughly until all traces of detergent are eliminated. Squeeze out excess water (do not wring). Air dry.  
C. Saturate foam pre-cleaner in engine oil. Squeeze to remove excess oil.
4. Reinstall on paper cartridge.

Inspect paper element every 50 hours of operation and replace when dirty or damaged. Do not wash paper element or do not clean with compressed air as damage will occur.

**Note:** With air cleaner disassembled, check air cleaner components for damage. Replace if necessary. Make sure rubber tube in base plate is securely in place or severe engine damage may occur.

5. Reinstall element with pre-cleaner, element cover seal, air cleaner element cover, nut, air cleaner cover and wing nut.

6. Tighten wing nut 1/2 to 1 turn after nut contacts cover. Do not overtighten.

**IMPORTANT:** Always operate engine with air cleaner element in place or engine damage will result.

## CHANGING CRANKCASE OIL AND FILTER

1. Check level of oil before starting engine and after every 5 hours of operation. Maintain oil level at FULL mark on dipstick.

### To check level of oil:

- a. Position mower on level surface.
- b. Clean the area around oil dipstick so foreign matter cannot enter filler hole when dipstick is removed.
- c. Remove dipstick and wipe oil off with a clean rag.
- d. Insert dipstick fully in to filler neck; then remove it and check oil level on dipstick. If level is low, add only enough to raise level to FULL mark. Do not overfill or engine damage may result.
- e. Insert dipstick back into filler neck.

2. Change oil after first 5 hours of operation; every 25 hours thereafter. Change oil after first 25 hours and every 50 hours operation thereafter. Change oil and filter more frequently when operating conditions are extremely dusty or dirty.

### To change oil and filter:

- a. Position mower on level surface. Start and run engine for a period to warm the oil.
- b. Turn engine off and place drain pan under frame, below drain plug (Fig. 20). Remove drain plug and allow all oil to flow into drain pan. Install drain plug after oil stops flowing.
- c. Clean area around oil filter and remove filter.
- d. Apply a thin coating of oil on the rubber filter seal. Also, clean the filter mounting surface.
- e. Rotate filter clockwise until rubber seal contacts mounting surface, then tighten filter an additional 2/3 to 3/4 turns.
- f. Remove dipstick and add oil to crankcase. Refer to CHECK CRANKCASE OIL LEVEL, page 10. Capacity of crankcase is 3 pints (3-1/2 when changing filter.) DO NOT OVER-FILL or engine damage may result.

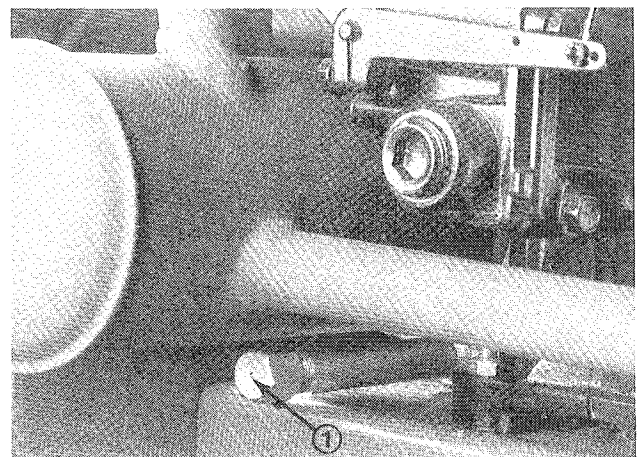


Figure 20

1. Drain plug



# MAINTENANCE

Use any high-quality A.P.I. classification SF engine oil. Recommended viscosity of oil to use is:

- Above +32°F (0°C) — Use only SAE 30.
- Between +32°F (0°C) and 0°F (-18°C) — Use SAE 10W30 or 10W40.
- Below +32°F (0°C) — Use 5W20 or 5W30.

**Note:** Avoid premature engine failure by insuring the funnel used is clean so contaminants are not introduced into the crankcase. Wipe any oil spilled, so it will not cause dirt to collect on the engine.

## FUEL FILTER REPLACEMENT

An in-line filter is incorporated into the fuel line between the fuel tank and carburetor (Fig. 21). Use the following procedures should replacement become necessary:

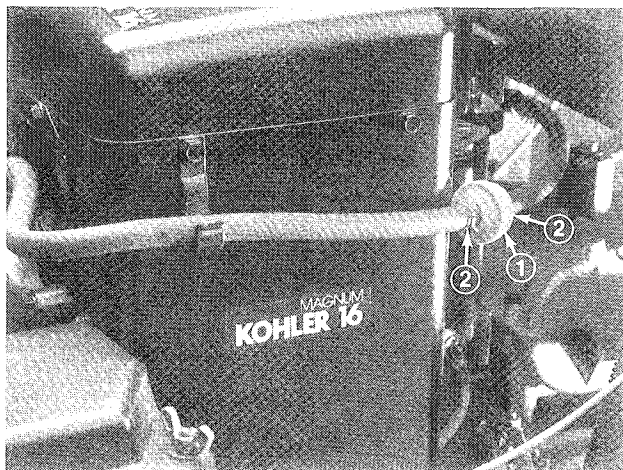


Figure 21

1. Fuel filter      2. Hose clamp

1. Close fuel shut off valve, loosen the hose clamp on the carburetor side of filter and remove the fuel line from the filter.
2. Place a drain pan under filter, loosen the remaining hose clamp and remove filter.



### CAUTION

Since gasoline is highly flammable, drain it outdoors and make sure engine is cool to prevent a potential fire hazard. Wipe up any gasoline that may have spilled. Do not drain gasoline near any open flame or where gasoline fumes may be ignited by a spark. Do not smoke a cigar, cigarette, or a pipe when handling gasoline.

3. Install the new filter with arrow on the filter body pointing towards the carburetor.

## REPLACING SPARK PLUGS

Since air gap between center and side electrodes of the spark plug increases gradually during normal operation of the engine, check condition of electrodes after every 25 operating hours. Recommended air gap is 0.025 of an inch (0.635 mm). Correct spark plug to use is:

Champion RV 15YC or equivalent.

**Note:** The spark plug usually lasts a long time; however, the plug should be removed and checked whenever the engine malfunctions.

1. Clean area around spark plug so foreign matter cannot fall into cylinder when spark plugs are removed.
2. Pull spark plug wires off spark plugs and remove plugs from cylinder head.
3. Check condition of side electrode, center electrode, and center electrode insulator to assure there is no damage.

**IMPORTANT:** A cracked, fouled, dirty or otherwise malfunctioning spark plug must be replaced. Do not sand blast, scrape, or clean electrodes by using a wire brush because grit may eventually release from the plug and fall into the cylinder. The result is usually a damaged engine.

4. Set air gap between center and side electrodes at 0.025 of an inch (0.635 mm) (Fig. 22). Install correctly gapped spark plug w/gasket seal, and tighten plug to 10-15 ft-lb (14-20 N·m). If torque wrench is not used, tighten plug firmly.

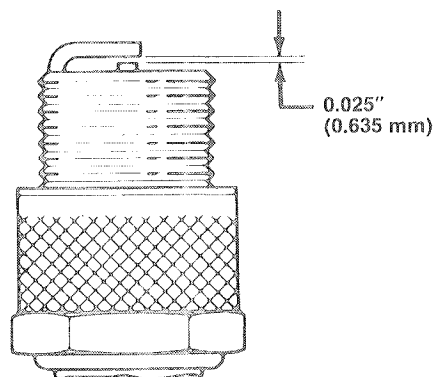


Figure 22

## ADJUSTING THROTTLE CONTROL

Proper throttle operation is dependent upon proper adjustment of remote control. Before adjusting the carburetor, assure the throttle control is operating properly.

# MAINTENANCE

1. Loosen cable clamp screw securing cable to engine.
2. Position remote throttle control lever forward until there is approximately 1/8" between lever and front end of slot in control base.
3. Pull firmly on throttle cable till governor arm contacts stop (Fig. 23).

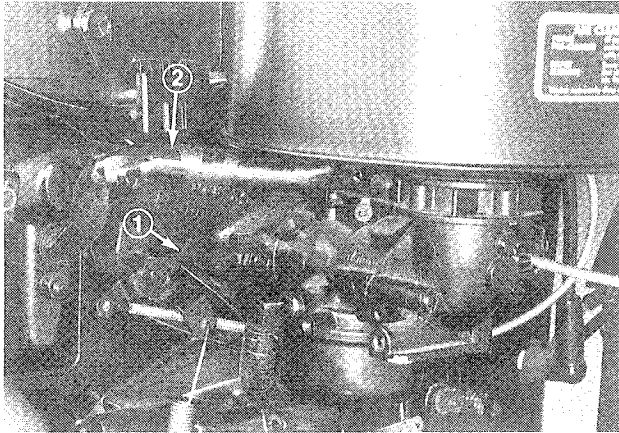


Figure 23

1. Governor arm
2. Stop

4. Tighten cable clamp screw and check engine RPM setting.

3200  $\pm$  100 — High Idle  
1200  $\pm$  100 — Low Idle

## ADJUSTING CHOKE CONTROL

1. Loosen cable clamp screw securing cable to engine.
2. Place choke control in ON position.
3. Pull firmly on choke cable and tighten cable clamp screw (Fig. 24).

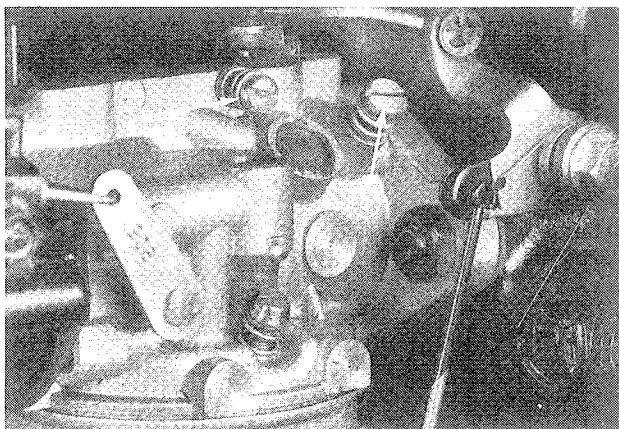


Figure 24

1. Idle fuel adjusting needle
2. Idle speed adjusting screw

## ADJUSTING CARBURETOR

The carburetor is designed to deliver the correct fuel-air mixture to the engine under all operating conditions. The main fuel jet is calibrated at the factory and is not adjustable. The idle fuel adjusting needle is also set at the factory and normally does not need adjustment. If, however, the engine is hard starting or does not operate correctly at idle speeds, it may be necessary to adjust the idle fuel needle.

**IMPORTANT:** Before the carburetor is adjusted, air cleaner must be clean, and throttle and choke controls must be checked for proper operation: refer to **Servicing Air Cleaner**, page 12, and **Adjusting Throttle and Choke Controls**, pages 14 & 15.

1. Idle Fuel Adjusting Needle (Fig. 24) — Close needle by gently rotating it clockwise.

**IMPORTANT:** Do not close the needle too tight because the needle and seat in carburetor will likely be damaged.

2. Rotate — open — the needle 1 turn counterclockwise (Fig. 24).

3. Start the engine and let it run at half throttle for 5-10 minutes to warm up. Engine must be warm before making final settings.



### WARNING

Engine must be running so final adjustment of the carburetor can be performed. To guard against possible personal injury, move deck engagement switch into OFF position, shift into neutral, and engage parking brake. Keep hands, feet, face, and other parts of the body away from the cutter blade, underside of mower housing, discharge area, and any rotating engine parts.

4. Idle Speed Setting — Move the throttle control to SLOW position. Set the idle speed 1200 rpm  $\pm$  75 rpm by turning the idle speed adjusting screw in or out. Check speed using a tachometer.

5. Final Setting — Idle Fuel Needle: Move the throttle control to SLOW position. Turn the idle fuel adjusting needle out (counterclockwise) until the engine speed decreases (rich). Note position of the needle.

Now turn the adjusting needle in (clockwise). The engine speed may increase, then it will decrease as the needle is turned in (lean). Note the position of the needle.

# MAINTENANCE

Set the adjusting needle midway between the rich and lean settings noted.

**Note:** To ensure best results when setting the idle fuel needle, the idle speed must not exceed 1500 rpm. Typical idle speed is 1200 rpm.

6. Recheck idle speed using a tachometer. Readjust speed as required.

## ADJUSTING AND REPLACING TRACTION BELT

1. Loosen capscrew and flange nut securing idler pulley to frame (Fig. 25). Slide pulley outward relieving belt tension.

2. Remove left front engine mounting bolt securing clutch retainer to frame (Fig. 25). Unhook retainer from clutch and remove retainer.

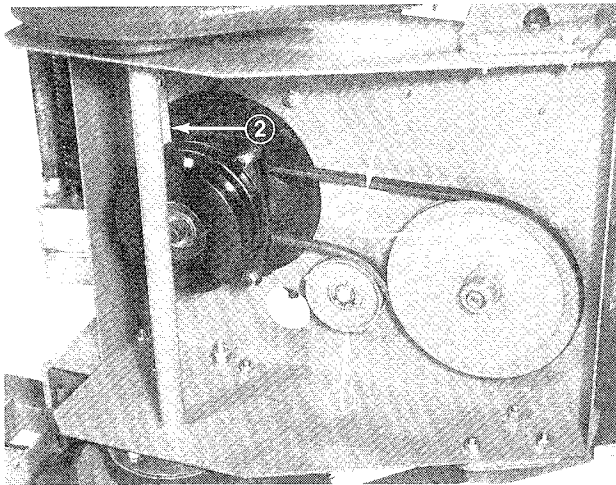


Figure 25

1. Idler pulley      3. Locknut on flange stud  
2. Clutch retainer

3. Disconnect in-line wire connector and remove belt from drive pulley and clutch (Fig. 25).

4. Install new belt around clutch and drive pulley.

5. Secure in-line connectors and reinstall clutch retainer to clutch and frame with engine mounting bolt. Torque engine mounting bolt to 170-220 in-lb.

6. Position and secure idler pulley to frame so belt deflection is no more than  $11/64$ " when 5-1/2 lb of force is applied to midspan of long leg of belt (Fig. 25).

## ADJUSTING CLUTCH

The clutch is adjustable to ensure proper engagement and proper braking.

1. To adjust clutch, tighten or loosen locknuts on flange studs (Fig. 25).

2. Check adjustment by inserting feeler gauge thru slots next to flange studs.

3. The proper disengaged clearance between the clutch plates is .012 - .018 inches. It will be necessary to check this clearance at each of the three slots to ensure the plates are parallel to each other.

## BRAKE ADJUSTMENT

An adjustment to the brake may be required to compensate for belt stretching or brake seating.

1. To adjust brakes, refer to Install Control Rod, page 8.

## DRIVE BELT REPLACEMENT

1. Remove top capscrew securing idler support and idler bracket to rear frame (Fig. 26).

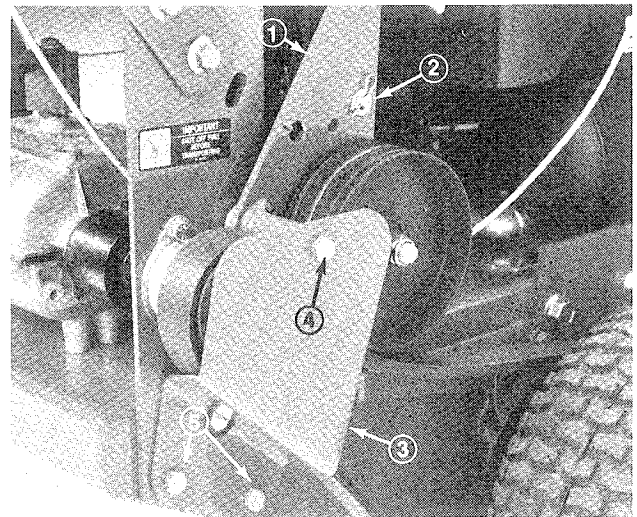


Figure 26

1. Idler bracket      4. Top capscrew  
2. Hairpin cotter, washer & brake rod fitting      5. Bottom capscrews  
3. Idler support

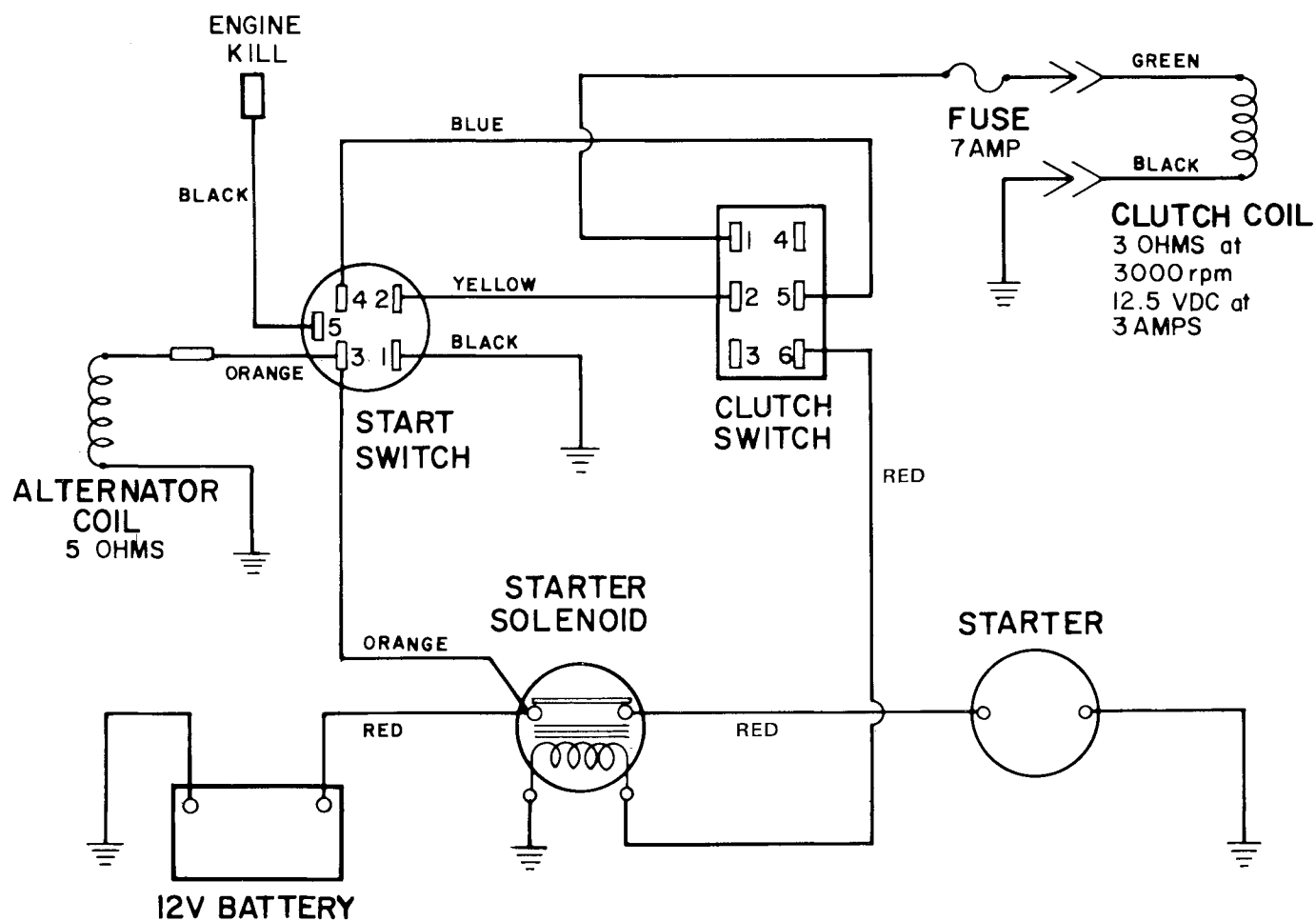
2. Loosen bottom two mounting screws enough to allow belt to pass between drive pulley and idler support (Fig. 26).

3. Raise wheel off ground enough to allow belt removal.

## CLEANING COOLING SYSTEM

Clean cooling system frequently, by removing any build-up of grass, dirt or other debris from the cylinder and cylinder head cooling fins, air intake screen on flywheel end, and carburetor-governor levers and linkage. This will help insure adequate cooling and correct engine speed and will reduce the possibility of overheating and mechanical damage.

# WIRING SCHEMATIC



## IDENTIFICATION AND ORDERING

The mower has two identification numbers: a model number and a serial number. The two numbers are stamped into a plate that is riveted to the frame on right front corner of mower. In any correspondence concerning the mower, 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 mower.
2. Part number, description and quantity of part(s) desired.

## MAINTENANCE RECORD

[illegible]



## MAINTENANCE RECORD

[illegible]

# The Toro Promise

## A ONE YEAR LIMITED WARRANTY

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

Commercial Products . . . . . 1 Year

*The cost of parts and labor are included, but the customer pays the transportation costs on walk rotary mowers with cutting unit widths of less than 25".*

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

1. Contact your Authorized TORO ProLine Service Dealer (the Yellow Pages of your telephone directory is a good reference source).
2. The TORO ProLine Service Dealer will advise you on the arrangements that can be made to inspect and repair your product.
3. The TORO ProLine Service Dealer will inspect the product and advise you whether the product is defective and, if so, make all repairs necessary to correct the defect without an extra charge to you.

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

Write:

TORO Consumer Products Service Department  
8111 Lyndale Avenue South  
Minneapolis, Minnesota 55420

The above remedy of product defects through repair by an Authorized TORO ProLine 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 condition is the responsibility of the owner.

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

Repairs or attempted repairs by anyone other than an Authorized TORO ProLine Service Dealer 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.

### COUNTRIES OTHER THAN THE UNITED STATES OR CANADA

Customers who have purchased TORO products exported from the United States or Canada should contact their TORO Distributor (Dealer) to obtain guarantee policies for your country, province or state. If for any reason

you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the TORO importer. If all other remedies fail, you may contact us at The Toro Company.