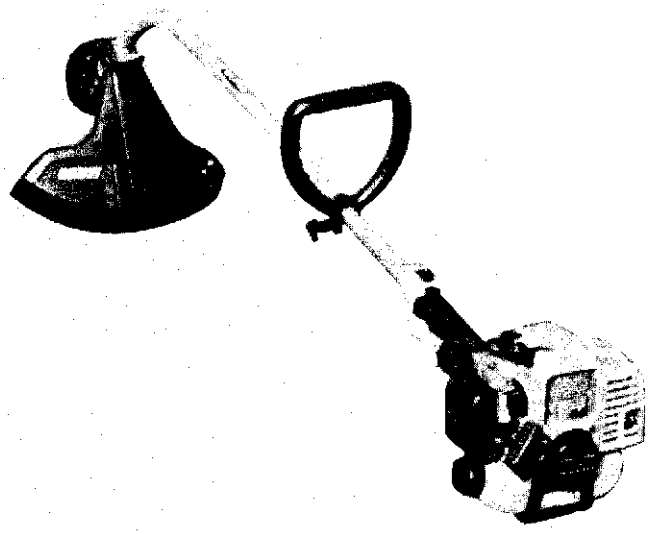
ECHO®



OPERATOR'S MANUAL

ECHO WEED & GRASS TRIMMER GT-2100

CAUTION

Read Rules for safe Operation and Instructions Carefully

898 561-4203 0

INTRODUCTION

The ECHO Weed and Grass Trimmer, model GT-2100, is a light-weight, high performance gasoline powered unit which is designed for weed and grass trimming in areas which are difficult, and laborious, to control by any other means. The model GT-2100 is fitted with a 21.2cc engine and with a semi-automatic nylon line cutter head.
This manual provides the information necessary for assembly, adjustment, operation and maintenance of your unit.

SAFETY INSTRUCTIONS

1. Do Not operate the unit when you are fatigued.
2. Do Not operate if other people or animals are in the work area.
3. Do Not operate the unit without the shield correctly in position.
4. Do Not operate in a confined area. Carbon monoxide exhaust gas is highly poisonous.
5. Do Not operate the unit while you are smoking.
6. Always wear eye protection goggles when operating the unit.
7. Always hold the unit firmly with both hands and with fingers and thumbs encircling the handles
8. Always obey local ordinances regulating the use of internal combustion engines in your area.
9. Always use the cutting attachments as approved and supplied by ECHO Inc. for your unit.
10. Always remain alert when operating the unit to avoid possible injury to yourself and other people.
11. Do Not operate the unit while under the influence of drugs or alcohol.

WARNING-DANGER

1. Do Not smoke while handling gasoline.
2. Do Not refuel a hot engine. Wait until it cools.
3. Do Not overfill the tank. Spilled fuel must be wiped up.
4. Always stop the engine when refueling.
5. Always remove the fuel cap slowly in order to relieve any pressure build up in the tank.
6. Always restart the engine at least 10 feet away from the refueling point.
7. Always store gasoline in an approved container.

WARNING - DANGER

This unit is not designed to use steel blades. To avoid possible serious injury use only the cutting devices approved by ECHO INC. for this model.

DO NOT USE STEEL BLADES ON THIS UNIT.

CONTENTS

TECHNICAL DATA

			GT-2100
Dimension	L x W x H	cm (in.)	140x32x36(55.1x12.6x14.2)
Weight		kg (lbs)	4.5 (11.0):w/o cutter head
Engine	Type		Air cooled two stroke single cylinder
	Displacement	cc (cu. in.)	21.2 (1.29)
	Max. revolution	rpm	7500
	Carburetor		ZAMA diaphragm type C1U
	Ignition		Flywheel magneto: CDI (Capacitor Discharge Ignition) system
	Spark plug		NGK BPM7A or CHAMPION CJ-7Y
	Starter		Recoil starter
	Clutch		Automatic centrifugal clutch
Fuel	Mixing ratio		Mixture of regular leaded gasoline and air cooled two stroke engine oil 32 : 1 ratio with ECHO oil or 50 : 1 ratio with special oil approved by ECHO
	Tank capacity	litre (FL.OZ.US)	0.4 (13.6)
Drive shaft ass'y	Cutter (Nylon line cutter head)		Semi-automatic
			Cutting swath 16 in.
	Bearing		Two Ball Bearings
	Rotation		Clockwise viewed from top
	Lubrication		Shell Delpena or good quality lithium based grease
	Drive shaft		Flexible high tensile steel
	Shield		Plastic shield mounted on the bearing housing (with replaceable cut-off knife)

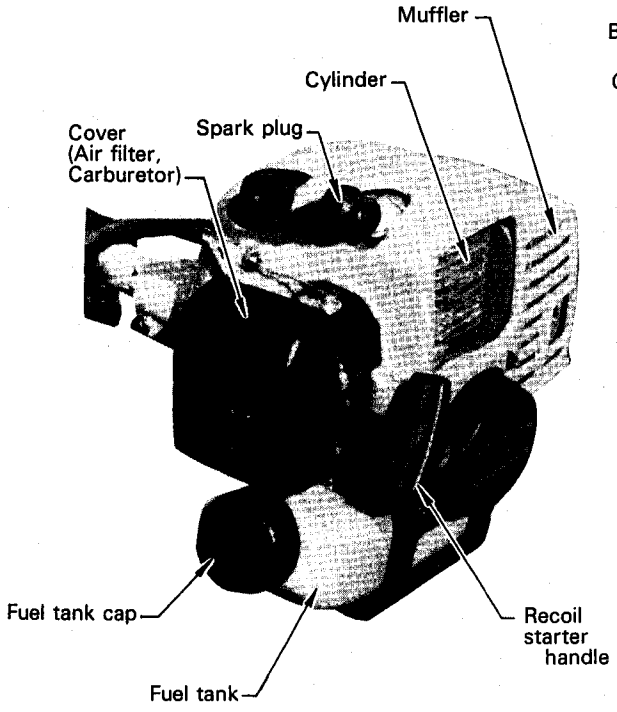
Technical data subject to change without notice.

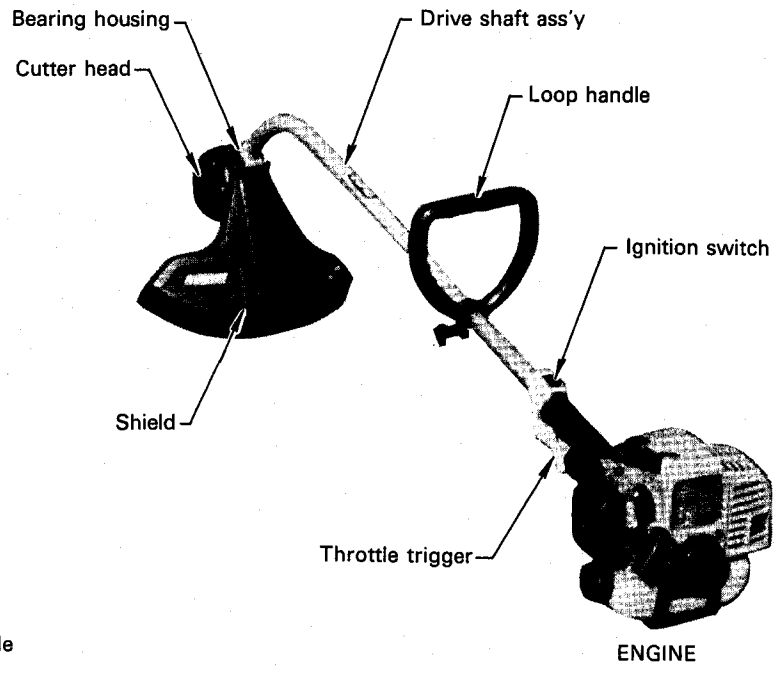
ATTENTION

For your protection, when operating this unit, comply with all Safety Rules as listed in this Operator's Manual. (Replacement manuals are available from your Echo dealer.)

1. Do not operate unless the debris shield is in good conditon and properly installed.
2. Do not operate if other persons or animals are in the work area.
3. Do not operate without eye protection goggles, available from your Echo dealer.

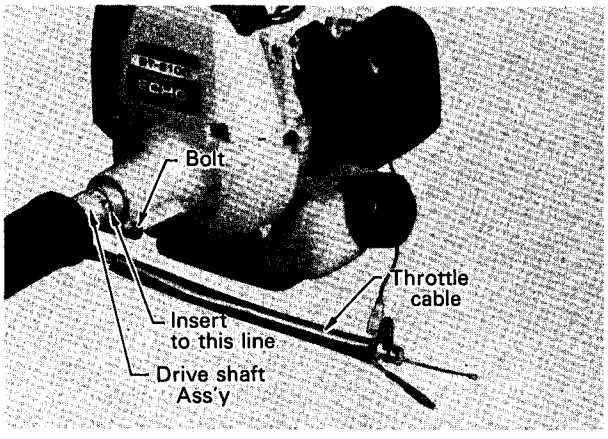
NOMENCLATURE OF PARTS





DRIVE SHAFT

- Stand engine upright on a level floor.
- Loosen bolt at drive shaft end of the engine.
- Fit drive shaft assembly to engine ensuring that the drive shaft is correctly engaged.
- The line on drive shaft housing must be in contact with the engine.
- Rotate drive shaft housing until gear housing is in line with the engine.
- Tighten bolt to fasten drive shaft ass'y.



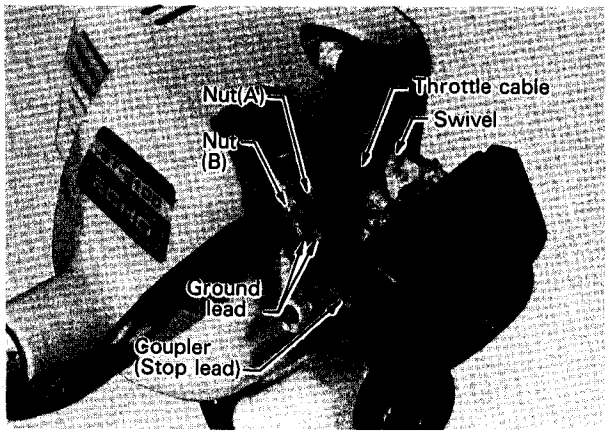
WARNING

Never start engine without driveshaft assembly installed. This could result in serious injury.

THROTTLE CABLE

The engine is delivered with throttle cable (engine side) separated, assemble the cable to carburetor as follows.

- Remove nut (A) from throttle cable.
- **Fit both terminals of ground lead on the both sides of the support.**
- Set throttle cable on the support of fancover as shown.
- Replace nut (A) finger tight, and attach the inner cable to swivel on throttle lever ensuring that the nipple fits into socket provided on one side of slot.
- Tighten nut (A) to secure in this position.
- Check that throttle operates freely and returns to idle position.
- Do not loosen nut (B) unnecessarily, since it has been located properly at the factory.
- Install the cover.



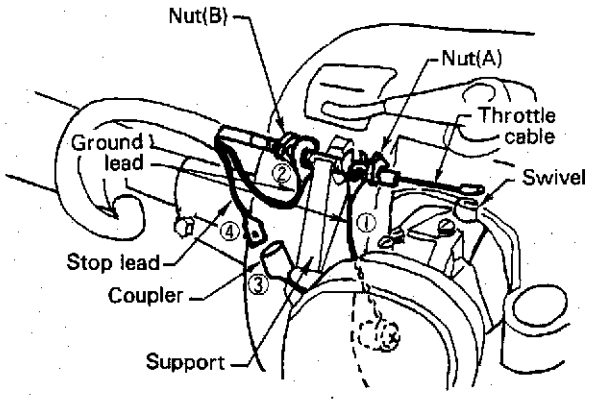
- Connect WIRE from ignition switch (stop lead) to coupler on engine.

REFER TO NEXT PAGE

NOTE

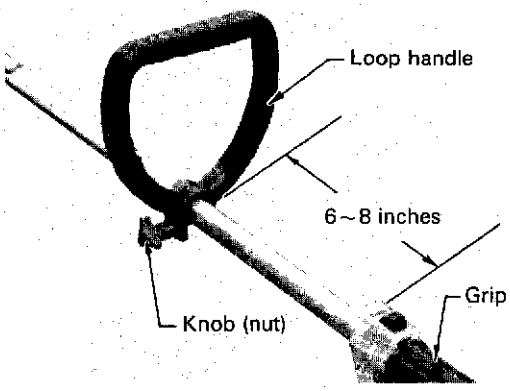
THROTTLE CABLE CONNECTION

- Ensure that both terminals of ground leads (①. ②) are fit on the sides of the support.
- Stop lead ④ should be conncted by the coupler ③ completely.



LOOP HANDLE

- Remove the knob (nut), washer and bolt from the loop handle.
- Push the handle over the drive shaft approximately 6-8 inches from the grip.
- Adjust location of the handle to a convenient operating position.
  Secure in position with the bolt and knob (nut).

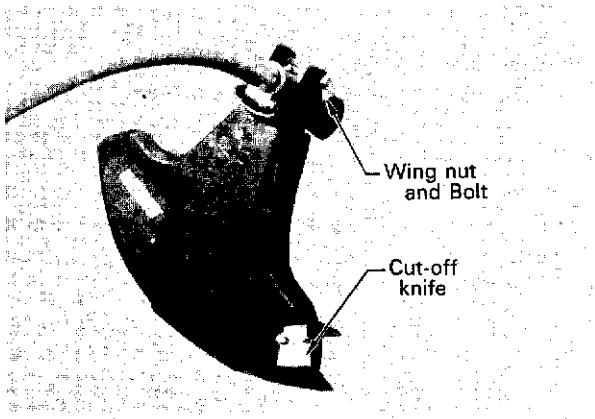


SHIELD (with cut-off knife)

- Remove the wing nut, washer and bolt from the shield.
- Install the shield on the bearing housing as shown.
- Fit the bolt and washer tighten the wing nut by hand.

(NOTE) LOCATION of THE CUT-OFF KNIFE should be altered depending on the model as illustrated. (Remove both nuts and cut-off knife and set it as required.)

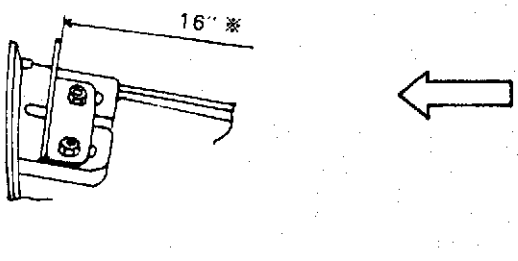
- The knife will normally cut the nylon line to the required length.

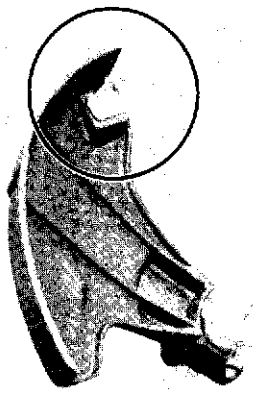


CAUTION

DO NOT OPERATE TRIMMER WITHOUT SHIELD IN CORRECT POSITION.

LOCATION OF THE CUT-OFF KNIFE





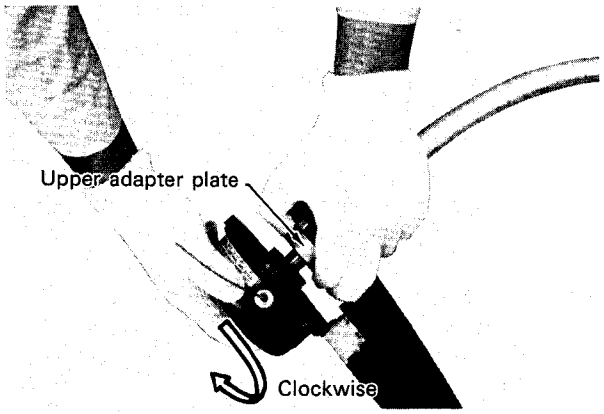
※ Number in the illustration indicates normal operating width (swath).

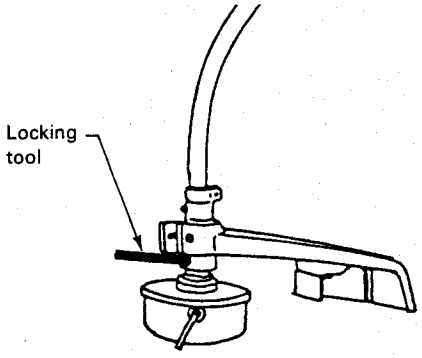
NYLON LINE CUTTER HEAD (Semi-automatic)

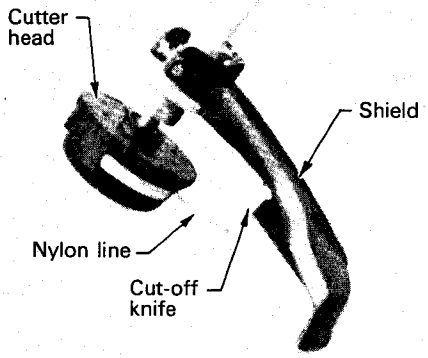
INSTALLATION

Install the nylon line cutter head to the shaft as follows.

- Rotate the drive shaft until the holes in the upper adapter plate and bearing housing are aligned.
- Insert locking tool in holes.
- Screw the cutter head on the drive shaft. (Rotate the head CLOCK-WISE to tighten.)
- Remove locking tool.







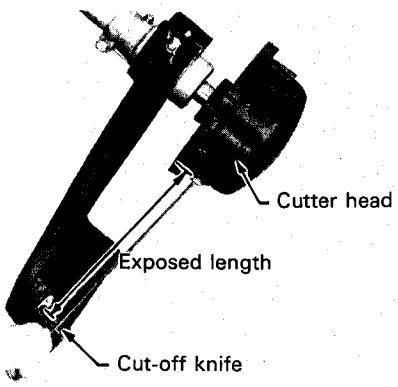
ADJUSTMENT

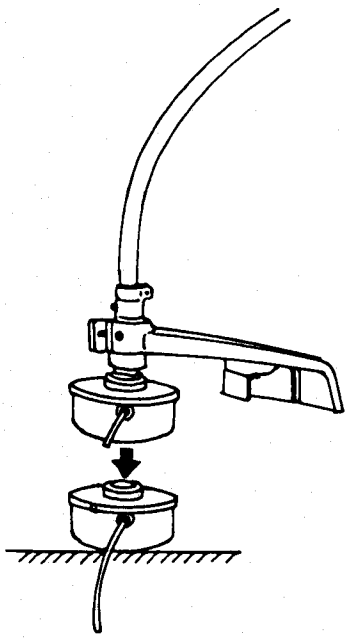
In service, the cord will fray at the end and eventually become too short for satisfactory use.
Semi-automatic cutter head feeds replacement line without stopping the engine.

- TO ADJUST the length of the line, simply tap the head firmly on the ground at normal operating speed.
- One inch of cord will feed each time the head is operated.
- Location of the cut-off knife (Attatched on the shield) should be altered depending on the models.

- For location of the cut- off knife, refer to installation of the shield, page 4.

Exposed length of the line : 6 in
: Measured from the edge of the cutter head to the tip of the nylon line.





TAP THE CUTTER HEAD ON THE GROUND AT OPERATING SPEED
(Only semi-automatic type)

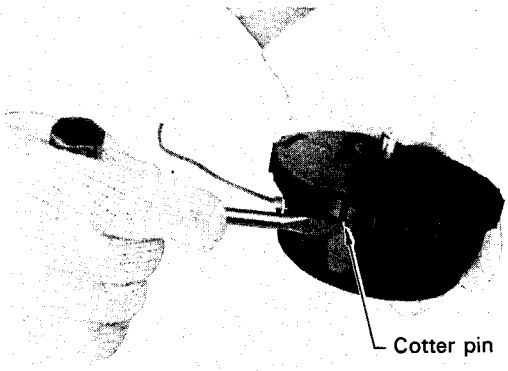
CAUTION: STOP THE ENGINE BEFORE HANDLING THE CUTTER HEAD.

REPLACEMENT OF THE NYLON LINE

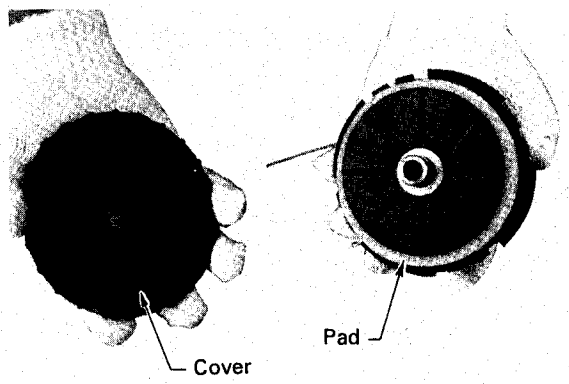
- Remove the cotter pin. Ⓐ
- Holding the unit as illustrated, rotate the right hand counter-clockwise and seperate the unit. Ⓑ
- Remove the foam pads from the reel. Ⓒ
- Secure one end of the replacement nylon line to the reel hub with adhesive tape.
- Holding the cord tight, wind it in a counter-clockwise direction as indicated by the arrow on spool. Ⓓ
- Replace the foam pads in the reel to hold the line in place. Ⓔ
- Fit the coil spring in the hub if previously removed. Feed the nylon line through the eyelet in the hub and press the reel into position against the spring.
- Engage the four locking tabs and rotate the hub clockwise, to lock position.
- Install a new cotter pin.

CAUTION

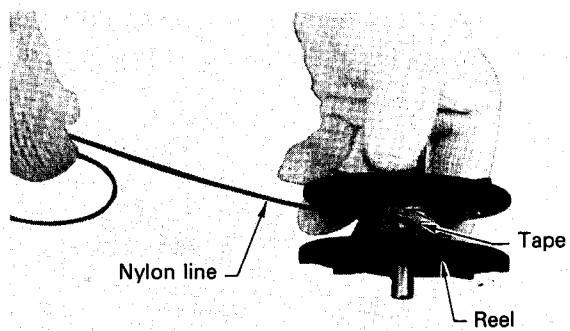
- DO NOT OPERATE THE TRIMMER WITHOUT COTTER PIN IN PLACE



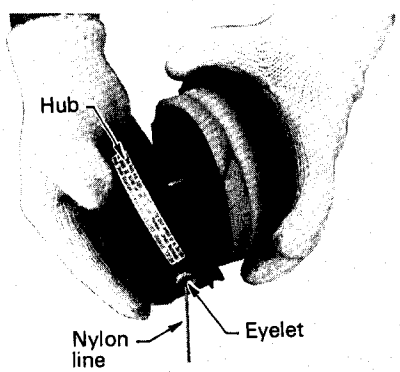
Ⓐ



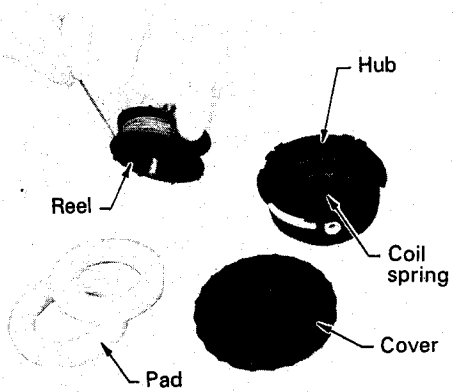
Ⓑ



Ⓒ



Ⓔ



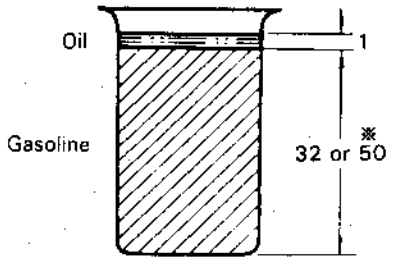
Ⓓ

OPERATION

- Check for loose nuts, bolts and screws before using the unit.

FUEL

- Fuel used for this model is a mixture of regular leaded grade gasoline and ECHO brand motor oil.
- Mixture ratio : 32 : 1 ratio with ECHO oil or 50 : 1 ratio with special oil approved dy ECHO.
  - — Fuel mixture at a ratio other than directed.
    oil may cause malfunction of the engine.
  - — Pour 1/2 of the gasoline into a safe container, add oil and mix thoroughly.
  - — Now add the remainder of gasoline and mix again.
  - — Do not use motor oil other than that recommended above.
  - — Do not mix directly in engine fuel tank.
- After refueling, secure the fuel tank cap and wipe all spilled fuel with a dry cloth.



※(NOTE)
50 : 1 Ratio is applicable with special oil approved by ECHO.

Fuel mix chart

(32 : 1)

US		METRIC	
GAS	OIL	GAS	OIL
GAL.	FL.OZ.	LITERS	CC
1	4	4	125
2	8	8	250
5	20	20	625

(50 : 1)

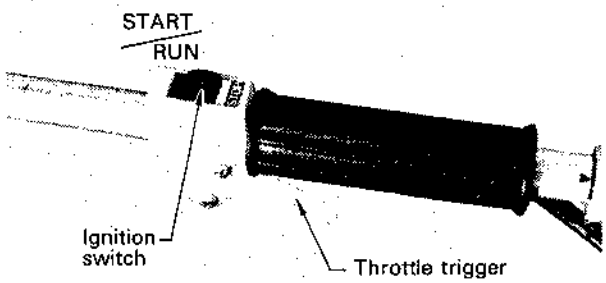
US		METRIC	
GAS	OIL	GAS	OIL
GAL.	FL.OZ.	LITERS	CC
1	2.6	4	80
2	5.1	8	160
5	12.8	10	400

Normal Use
Leaded Fuel, Regular Grade

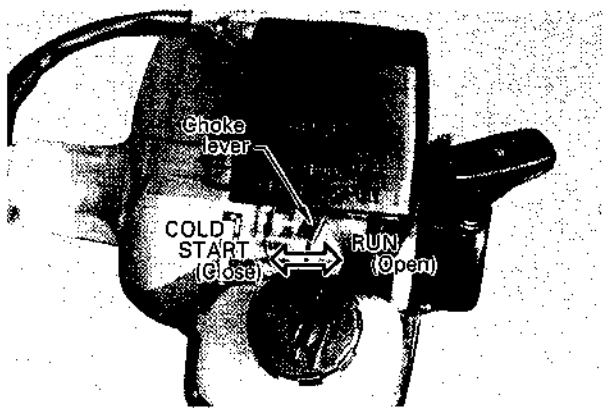
Alternate or Emergency Use
Unleaded Regular Fuel—Min. Octane 87 $\left(\frac{M+R}{2}\right)$
Do not Use Gasohol !

STARTING COLD ENGINE

- Slide ignition switch to START/RUN position as shown. (FORWARD) Turn choke lever to COLD START (Close) position.
- Squeeze throttle trigger slightly and pull starter handle several times until first firing sound.
  Now, turn choke lever to RUN (Open) position, and if necessary, restart the engine.
- When engine has been started, release throttle trigger and allow to warm up for a few minutes before using.
- After idling, gradually squeeze throttle trigger and cutter head will start to operate as the engine attains clutch engagement speed of 3000 RPM approximately.



(NOTE)
Recoil starter: Use short pulls—only 1/2—2/3 of starter rope for starting.
Do not allow the starter handle to snap back against the casing.
Always hold the unit firmly.



Before starting the engine, make sure that the cutter head is not contacting anything.
Do not allow people into the starting area.

CAUTION: DO NOT RUN THE ENGINE ON FULL THROTTLE WITHOUT CUTTER HEAD TO AVOID ENGINE DAMAGE

STARTING WARM ENGINE

- When engine is warm, start it by pulling recoil starter rope with switch positioned at START/RUN.
  (Keep choke lever in RUN (Open) position.)
- If engine does not start in a few tries, follow same procedures as starting a cold engine.

STOPPING ENGINE

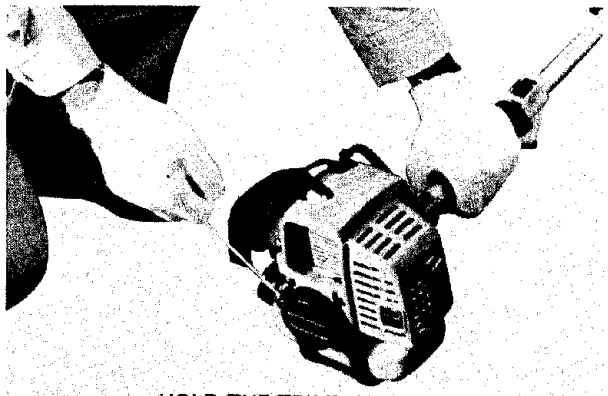
- Release throttle trigger and allow to run at an idle speed.
- Slide back ignition switch to "STOP" position.

(NOTE)

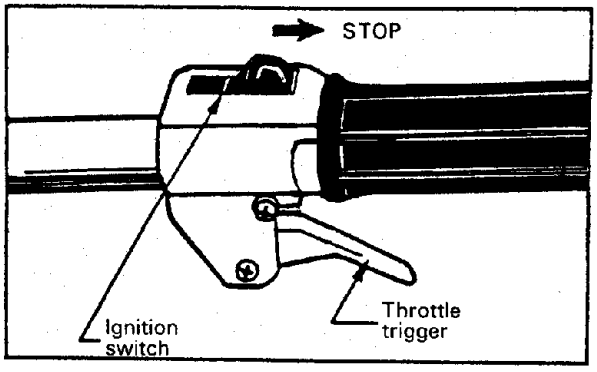
If engine does not stop, shift choke lever to close position. Check and repair stop switch before starting the engine again.

WARNING

Never start engine without driveshaft assembling installed. This could result in serious injury.



HOLD THE TRIMMER FIRMLY



GENERAL TRIMMING INSTRUCTIONS

Prior to using your trimmer, familiarize yourself with the safety instructions listed in the Operator's Manual, and all local regulations for the operation of your unit. These instructions and regulations are for the protection of the operator.
For all types of operations, always hold the trimmer securely with both hands, with thumbs and fingers encircling handle and grip.

CAUTION

- Do not allow either people or animals into the work area.
- Always wear safety goggles, gloves, non-skid foot wear.
- DRESS PROPERLY—Avoid loose clothing.
- Before starting operation, inspect for stones or any other foreign object (Can, bottle, steel wire etc.) in the area and remove them.
- When two or more operators are working together, ensure that a safe distance is kept between them.
- Keep both hands on the grips when power is on.
- Engine continues running even when cutter head has stopped due to an excessive load. In such cases, stop the engine and remove the cause of overloaded before again starting the engine and resuming the job.
- When grass or weed have clogged the cutter head affecting normal operation, first,stop the engine and remove them.
- Do not overreach or stand on unstable supports.
- In the event, that the cutter head strikes an obstruction, or is otherwise prevented from rotating in normal operation, the centrifugal clutch will slip to prevent engine damage. In this case, stop the engine free and examine the cutter head and if in good order, resume operation.
- Should the trimmer be operated for an extended period in high temperatures, the drive shaft housing may become very hot. If too hot to touch, allow the unit to cool down, check the lubrication as per 'Maintenance' and continue to operate if it is in order.
- To avoid engine damage, do not run on full throttle without load.
- Do not operate the trimmer without the shield correctly fitted.

READ CAREFULLY SAFETY INSTRUCTION (Page 1).

For most cutting and trimming jobs, 13 ~ 15 cm (five ~ six inches) of cord (measured from the edge of the cutting head to the tip of the cutting cord) is recommended. Remember that cutting is done with the tip of the cord.

Do not attempt to cut with the entire length of the line. This will result in the cord snapping or fraying, thereby reducing the cutting efficiency and also will result in using more line than necessary.

*Length of cord depends on the models. Refer to page 4 and 5.

CUTTING PROCEDURES

Place the trimmer with the cutter head facing straight ahead. Always trim from the right to the left tilting the unit slightly to the left allowing the debris to the thrown away from the operator.

(CAUTION)

Letting the cutter head tilt to the right will result in debris being thrown back towards the operator.

(SEE ILLUSTRATIONS A and B)

SCALPING

Scalping is the removal of all vegetation down to the ground. For this operation, tilt the cutter head about 30°. Ensure the head is tilted to the left. (SEE ILLUSTRATION C)

Scalping around trees and bushes is particulary effective, but care should be exercised not to bruise the bark of young and sensitive growth.

In flower beds, always remember that the nylon line will cut in a complete circle to avoid cutting flowers instead of weeds.

EDGING

Tilt the cutter head to a vertical position. Allow the nylon line to skim along the edge of the concrete. Adjust the handle bracket so that this can be done with the least amount of effort. (SEE ILLUSTRATION D)

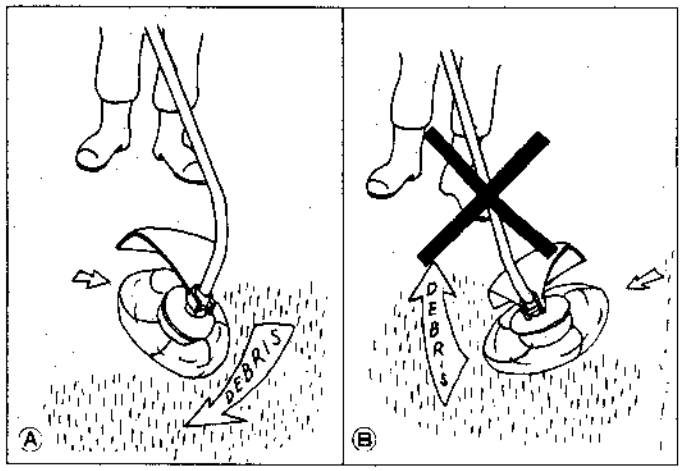
SWEEPING

For clearing driveways, sidewalks, etc. of grass and other debris, tilt the cutter head slightly to the left, then swing from side to side. (SEE ILLUSTRATION E)

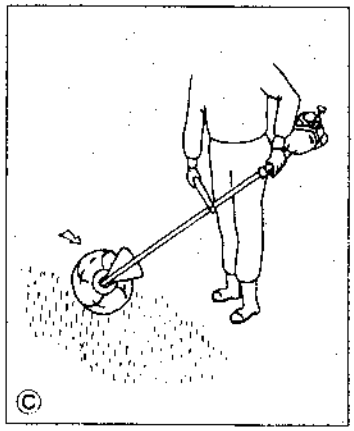
MOWING

Swing the trimmer from side to side while keeping the cutter head level. During this operation, debris may be thrown in any direction. Remember, safety glasses or a face shield is always necessary when using a trimmer !
(SEE ILLUSTRATION F)

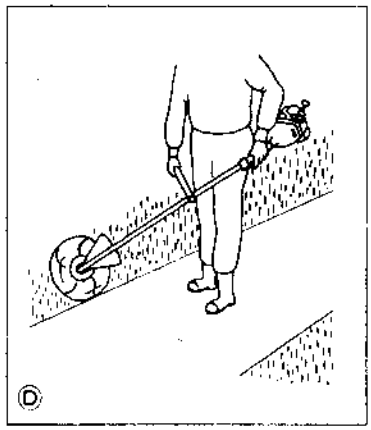
CUTTING PROCEDURES



SCALPING



EDGING



SWEEPING

MOWING

MAINTENANCE AND CARE

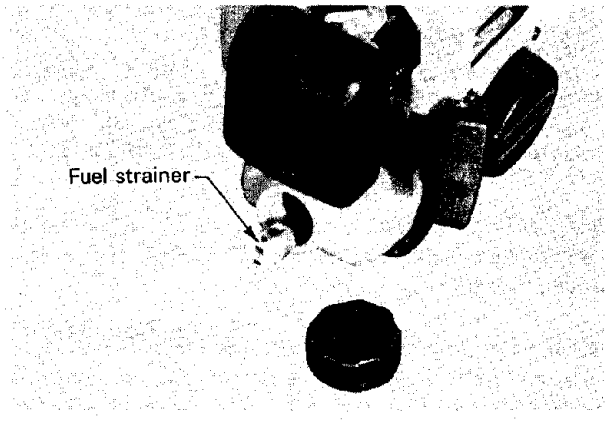
=ALWAYS KEEP THE UNIT CLEAN=

AIR FILTER

- Clean before using the unit.
  - Remove the cover for air filter and carburetor (pull out.)
  - Remove air filter from the cover.
  - Brush off dust lightly or wash it in suitable cleaning fluid.
  - If you wash it, dry it completely before putting back in place.
  - Install the cover. (Push on.)

FUEL STRAINER

- Check periodically.
  - Do not allow dust to enter fuel tank.
  - Clogged strainer will cause difficulty in starting engine or abnormalities in engine performances.
  - Pick up fuel strainer through fuel inlet port with a piece of steel wire or the like.
  - When strainer is dirty, wash it in suitable cleaning fluid or replace.



FUEL TANK CAP

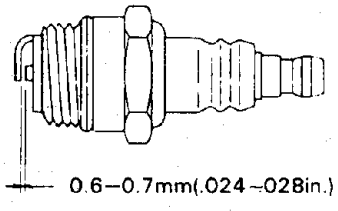
- Fuel tank cap is fitted with a check valve which allows air into the tank as fuel is consumed.
- Always clean the air vent and filter of the tank cap to prevent reduced engine performance.

- When installed, filter must lay on bottom of tank.

SPARK PLUG

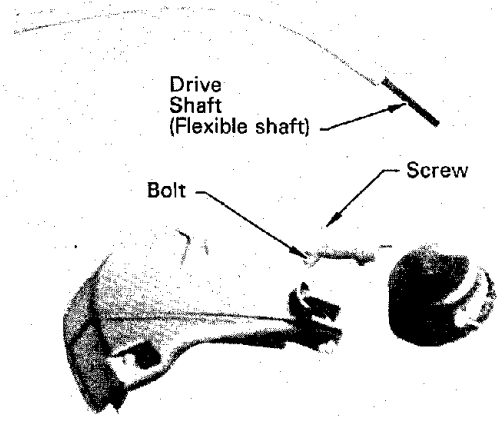
- Check periodically.
- Standard spark gap is 0.6–0.7 mm (0.024–0.028 in.)
- Replace if either electrode is worn or if the insulator is fouled by oil or other deposits.
- TORQUE - 145–155 kg-cm (125–135 in. lb)

CAUTION
Do not over torque.



DRIVE SHAFT (Flexible shaft)

- Clean and relube.
- Entire surface of the flexible shaft should be properly greased. (It has been greased at the time of shipment from the factory.)
- We recommend lubricating, reversing (end for end) and greasing the driveshaft as follows.
  - Loosen screw and bolt of the bearing housing and remove it.
  - Pull the flexible shaft from the drive shaft tube.
  - Wipe clean and recoat the shaft with a thin coating (15~20g) of lithum base grease.
  - Install the shaft following in reverse, the procedures adove.



CARBURETOR

- Carburetor is set at the factory. So normally, further adjustment is unnecessary. If readjustment is required, refer to the following instructions.

The diaphragm carburetor has three external adjustments, and to some extent, the adjustment of each will affect the other two. It will be necessary, therefore, to readjust each until satisfactory performance is achieved.

1. Idle speed adjusting screw.
   This adjustment controls the throttle opening in the idle position.
2. Low (LO) speed needle screw.
   The low speed needle controls the volume of fuel/oil mixture at low engine speed. It also controls the supplementary fuel required to obtain smooth progression from idling to high speed.
3. High (HI) speed needle screw.
   The high speed needle controls the volume of fuel/oil mixture at full throttle opening.

Turn both 'HI' and 'LO' needles clockwise until fully closed.

ADJUSTING THE CARBURETOR

INITIAL SETTING HI AND LO NEEDLES

Turn both HI and Lo needles clockwise to seat lightly in the carburetor body.

CAUTION

The needle screws have a sharp point. To avoid carburetor damage, do not use excessive force.

Unscrew the 'LO' needle one complete turn.
Turn the idle speed adjustment screw clockwise until the throttle is slightly open.
Start the engine and run for a few minutes on high idle until the engine is warm. Allow the engine to idle, and if necessary, readjust the idle speed screw to keep the engine from stalling or engaging the clutch.

'LO' SPEED ADJUSTMENT

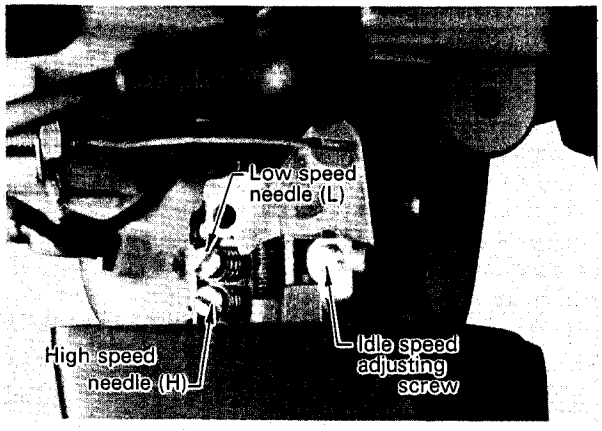
Turn the 'LO' needle clockwise slowly and note the position at which the engine speed is reduced. Now turn the 'LO' needle counterclockwise and again note the position when speed is reduced. Set the needle in the midway position. Finally, adjust the engine idling speed by turning the idle speed screw in a clockwise direction until the clutch just begins to engage. This indicates a speed of 3000–3400 RPM. Now reduce engine speed by turning the screw counterclockwise one half turn.

'HI' SPEED ADJUSTMENT

Engine must be at normal operating temperature.
Turn the 'HI' needle counterclockwise 1-1/4 turns.
Run the engine at full throttle and turn the 'HI' needle slowly clockwise until the engine runs smoothly without "four stroking" on no load.
Turn the needle open again (counterclockwise) 1/8 turn to obtain optimum fuel for full power under load conditions.

CAUTION

DO NOT RUN THE ENGINE ON FULL THROTTLE LONGER THAN 5-6 SECONDS TO AVOID DAMAGE TO ENGINE.



MUFFLER AND EXHAUST PORT (SAM)

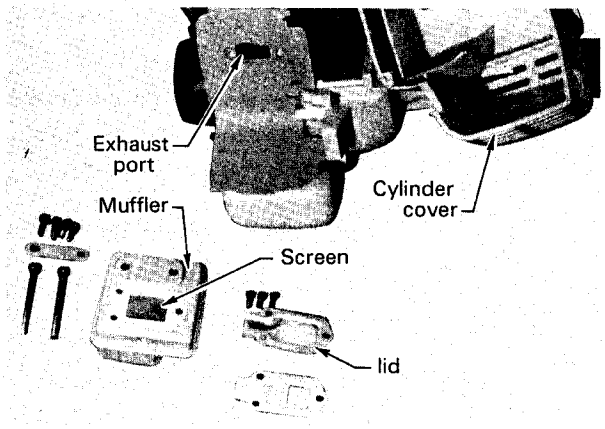
- Clean as necessary.
- Carbon deposits in cylinder exhaust port and muffler will reduce engine output.
  - Muffler can be removed by taking off cylinder cover.
  - Be careful not to scratch cylinder or piston when cleaning cylinder exhaust port.
  - Clean the spark arrester screen too.

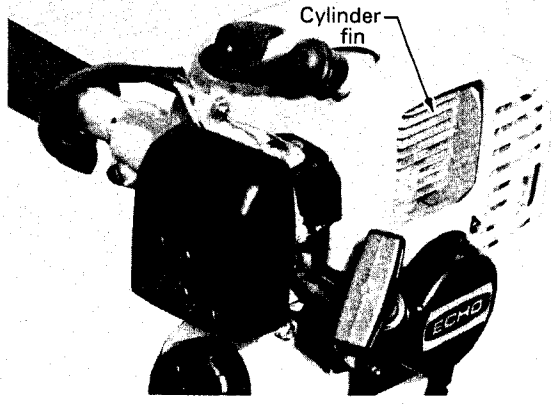
(To remove cylinder cover, remove four screws and high tension grommet.)

(NOTE) Use non-ferrous plastic or wood.

CYLINDER FINS

- Check periodically.
- Clogged fins will result in poor engine cooling.
- Remove dirt and dust from between fins to let cooling air pass easily.





TROUBLE SHOOTING

Poor performance of the engine and/or trimming mechanism can normally be prevented by carefully following below listed.

Poor performances can easily be corrected even by a beginner.

When the engine does not function properly check the following three (3) positions first.

- Is engine compression adequate?
- Is fuel system in good condition and is enough fuel being supplied?
- Is electrical system in good condition and is spark plug operating normally?

When there is serious trouble of the next chart with the unit, do not try to repair it yourself but have your distributor or dealer do it for you. For detailed **TROUBLE SHOOTING** refer to tables 1 and 2. Locate the problem on the following charts and repair as necessary.

Table 1