



# **Grass Trimmer/Brush Cutter**

## ***Operator's Manual***

**MODELS,**

**SRM- 2450**

**Serial Number 001001 & Up**

**MODELS, Type 1E**

**SRM -2450**

**Serial Number 001001 & Up**



**WARNING**



**DANGER**

Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual and a Safety Manual. Both must be read and understood for proper and safe operation.

## INTRODUCTION

Welcome to the ECHO family. This ECHO product was designed and manufactured to provide long life and on-the-job-dependability. Read and understand this manual and the SAFETY MANUAL you found in the same package. You will find both easy to use and full of helpful operating tips and SAFETY messages.

### WARNING DANGER

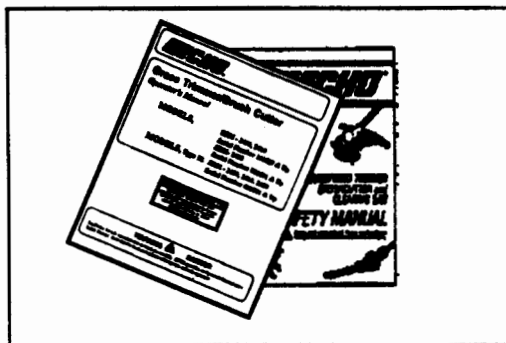
Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual and a Safety Manual. Both must be read and understood for proper and safe operation.

## THE OPERATORS MANUAL --

contains specifications and information for operation, starting, stopping, maintenance, storage and assembly specific to this product.

## THE SAFETY MANUAL --

explains possible hazards involved with the use of Grass Trimmers and Brush Cutters and what measures you should take to make their use safer.



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Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment.

## MANUAL SAFETY SYMBOLS & IMPORTANT INFORMATION

Throughout this manual and on the product itself, you will find safety alerts and helpful, information messages preceded by symbols or key words. The following is an explanation of those symbols and key words and what they mean to you.



This symbol accompanied by the words **WARNING** and **DANGER** calls attention to an act or condition that can lead to serious personal injury to operator and bystanders.



The circle with the slash symbol means whatever is shown within the circle is prohibited.



**IMPORTANT** The enclosed message provides information necessary for the protection of the unit.

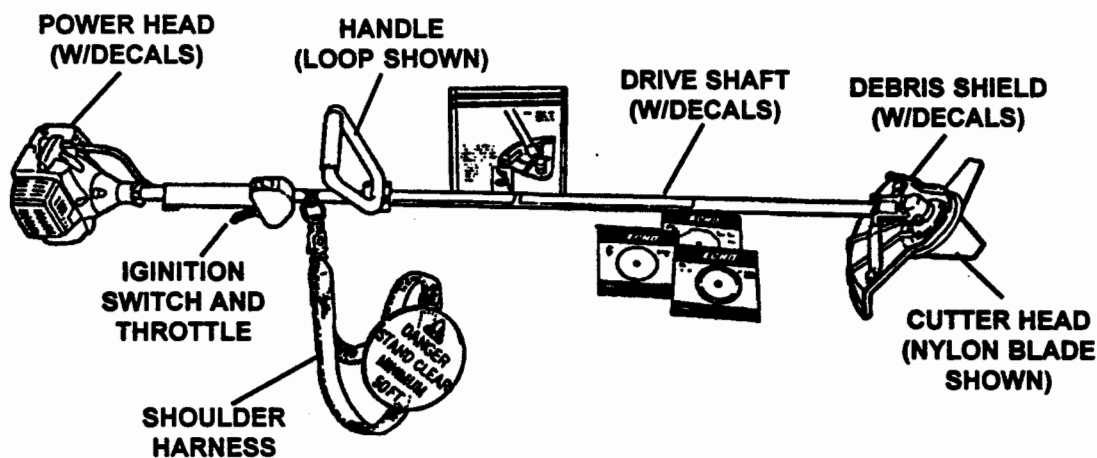
**NOTE** This enclosed message provides tips for use, care and maintenance of the unit.

## SAFETY

### GENERAL DESCRIPTION

#### IMPORTANT

See Description and Specification sections for full description and illustration of model variation in power head, handle type, harness and debris shield/cutter head.



## DECALS

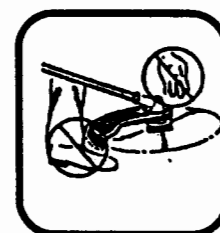
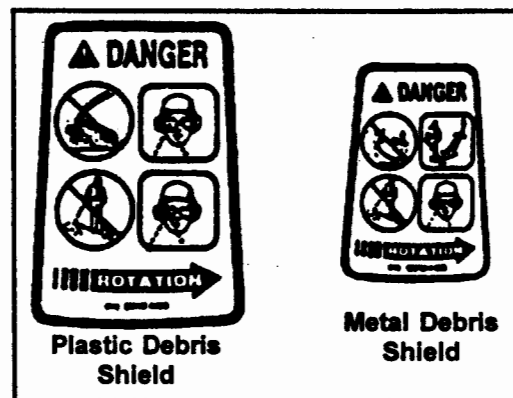
Locate these safety decals on your unit. The complete unit illustration, found in the "DESCRIPTION" section, will help you locate them. Make sure the decals are legible and that you understand and follow the instructions on them. If a decal cannot be read, a new one can be ordered from your ECHO dealer. See PARTS ORDERING instructions for specific information.

### Shaft Decal

**WARNING ! DANGER**

- This unit can be dangerous and cause serious injury if improperly used. To reduce injury risk to operator, helpers and bystanders, read and understand the Operators and Safety manuals.
- Blindness can occur from objects that are thrown or ricocheted even with shield in place. Operators, helpers and bystanders must wear ANSI Z87.1 approved eye protection.
- Always wear hearing protection when operating unit.
- Prevent accidental contact with unit and any cutting attachment. Maintain a 50 ft. (15M) radius, **DANGER ZONE** surrounding the operator. **ONLY** the operator, dressed in proper protective clothing should be in the **DANGER ZONE**.
- Beware of **KICKOUT** (blade thrust) when using blades. Special precautions are necessary for blade operation, see your Operator's and Safety Manuals. **ONLY** install ECHO approved blades on Brush Cutters (SRM) models equipped with proper blade shield, U-handles, harness, blade collar, nut and cotter pin.
- Blade/Cutting attachment does not stop immediately after releasing throttle. Keep hands and feet clear of blade/cutting attachment unless engine is shut off and cutting attachment is not moving.
- **INSPECT BLADES BEFORE USE.**
- **DO NOT USE DAMAGED, CRACKED, BENT, DULL OR IMPROPERLY SHARPENED BLADES.**
- Do not remove shields, modify the unit or install attachments or parts not approved by ECHO. Approved attachment information and replacement Operator's and Safety Manuals are available from your ECHO dealer or by writing: ECHO, INCORPORATED, 400 OAKWOOD RD., LAKE ZURICH, IL 60047.

## DEBRIS SHIELD DECAL



## INTERNATIONAL SYMBOLS

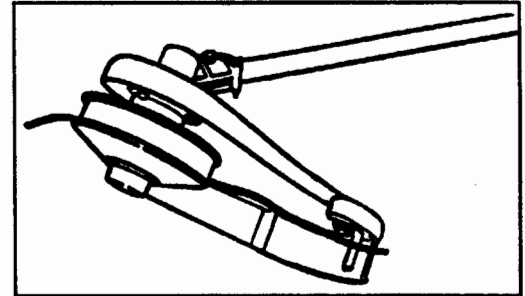
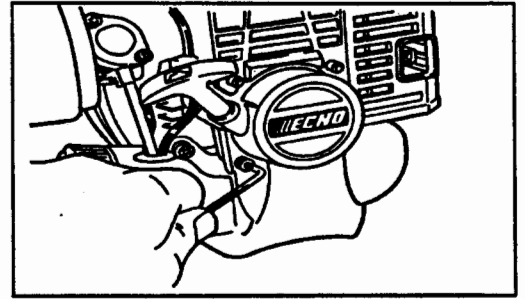
Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	"WARNING, SEE OPERATOR MANUAL"		Fuel and oil mixture
	Wear eyes, ears and head protection		Finger Severing
	Emergency stop		Carburetor adjustment - Low speed mixture

Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	Hot Surface		Carburetor adjustment - High speed mixture
			Carburetor adjustment - Idle speed

## EQUIPMENT

Before operation a complete check of the unit must be performed;

- Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.
- Inspect fuel lines, tank and area around carburetor for fuel leaks. DO NOT operate unit if leaks are found.
- Inspect shield for damage and ensure that the cut-off knife is securely in place. Replace if either is damaged or missing.
- Check that the cutting attachment is firmly attached and in safe operating condition.
- Check that loop (front) handle and shoulder strap/ or shoulder/waist harness is adjusted for safe, comfortable operation. See Assembly for proper adjustment.



## FUEL

### WARNING DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling, or serious personal injury may result.

- Use an approved fuel container.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- NEVER refuel a unit when the engine is HOT!
- NEVER refuel a unit with the engine running.
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks out doors over bare ground.

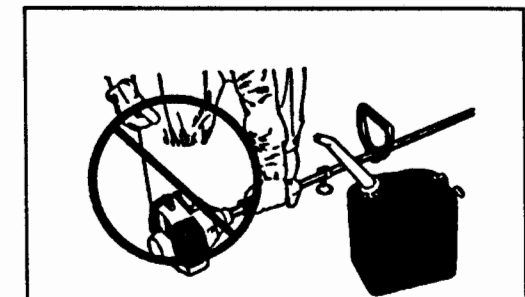


### *After Refueling;*

- Wipe any spilled fuel from the unit.
- Move at least 10 ft. (3 M) from refueling location before starting.

### *After Use;*

- DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.



## PERSONAL CONDITION & SAFETY EQUIPMENT

### WARNING DANGER

Trimmer/Brush Cutter users risk injury to themselves and others if the trimmer/brush cutter is used improperly and or safety precautions are not followed. Proper clothing and safety gear must be worn when operating a trimmer.

#### **Physical Condition –**

Your judgment and physical dexterity may not be good:

- if you are tired or sick,
- if you are taking medication,
- if you have taken alcohol or drugs.

Operate unit only if you are physically and mentally well.



#### **Eye Protection –**

Eye protection goggles that meet ANSI Z87.1 requirements were included with your trimmer. Wear these goggles whenever you operate the trimmer.

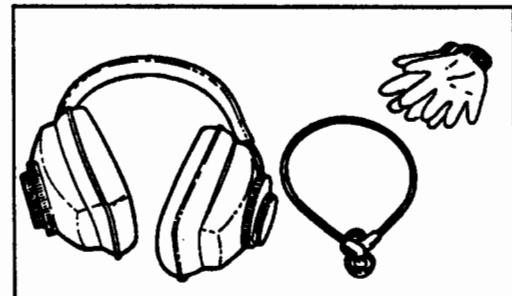


#### **Hand Protection –**

Wear no-slip, heavy duty work gloves to improve your grip on the Brush Cutter handles. Gloves also reduce the transmission of machine vibration to your hands. Special vibration reducing gloves such as Echo's Pro-Comfort are designed to provide additional comfort.

#### **Hearing Protection –**

Wear hearing protection. OSHA requires the use of hearing protection if this unit is used 2 hours per day or more. ECHO recommends wearing hearing protection whenever unit is used.



#### **Proper Clothing –**

Wear snug fitting, durable clothing;

- Pants should have long legs, shirts with long sleeves.
- DO NOT WEAR SHORTS,
- DO NOT WEAR TIES, SCARVES, JEWELRY.

Wear sturdy work shoes with non-skid soles;

- DO NOT WEAR OPEN TOED SHOES,
- DO NOT OPERATE UNIT BAREFOOTED.



## ***Hot Humid Weather --***

Heavy protective clothing can increase operator fatigue which may lead to heat stroke. Schedule heavy work for early morning or late afternoon hours when temperatures are cooler.

## **SAFE OPERATION**

### ***Determine Operation Area***

- Review the area to be trimmed. Look for hazards that could contribute to unsafe conditions.
- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 50 ft. (15M) while the trimmer is in use.

### ***Operation***

#### **Use Proper Clothing & Equipment**

- Before starting the unit, equip yourself and any other person working within the 50 ft. (15M) Safety Zone with the required Protective Equipment and clothing.

#### **Avoid Hot Surfaces**

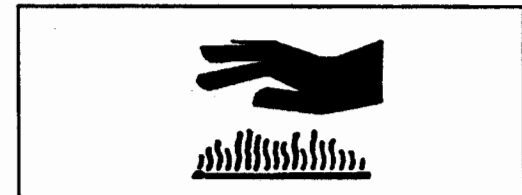
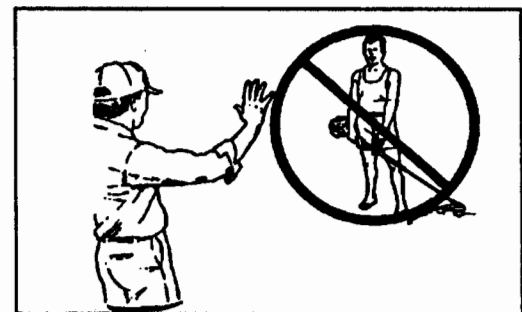
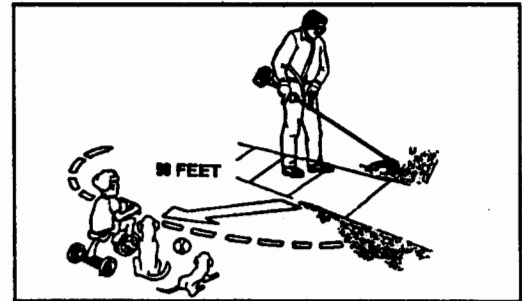
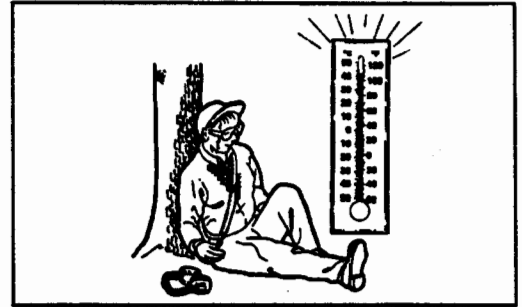
- During operation, the complete unit, especially the drive shaft housing and the bearing housing may become very hot, too hot to touch. Avoid contact during and immediately after operation.

#### **Keep A Firm Grip**

- Hold the front and rear handles with both hands with thumbs and fingers tightly encircling the handles

#### **Keep A Solid Stance**

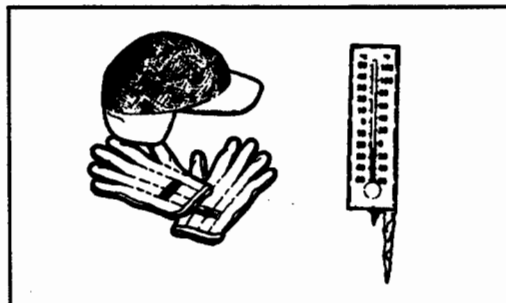
- Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not over reach.



**EXTENDED OPERATION/EXTREME CONDITIONS****Vibration and Cold –**

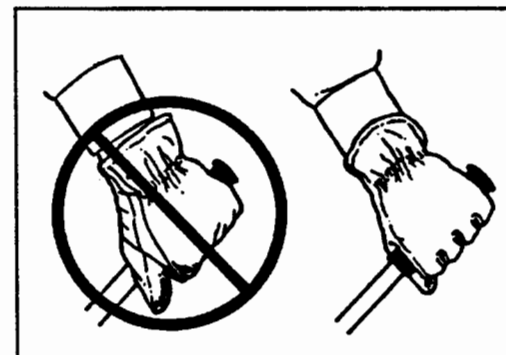
It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations followed by loss of color and numbness in the fingers. The following precautions are strongly recommended because the minimum exposure which might trigger the ailment is unknown.

- Keep your body warm, especially the head, neck, feet, ankles, hands and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the trimmer or other hand-held power equipment is not required.
- If you experience discomfort, redness and swelling of the fingers followed by whitening and loss of feeling, consult your physician before further exposing yourself to cold and vibration.

**Repetitive Stress Injuries –**

It is believed that overusing the muscles and tendons of the fingers, hands, arms and shoulders may cause soreness, swelling, numbness, weakness and extreme pain in those areas. Certain repetitive hand activities may put you at a high risk for developing a Repetitive Stress Injury (RSI). An extreme RSI condition is Carpal Tunnel Syndrome (CTS), which could occur when your wrist swells and squeezes a vital nerve that runs through the area. Some believe that prolonged exposure to vibration may contribute to CTS. CTS can cause severe pain for months or even years. To reduce the risk of RSI/CTS, do the following:

- Avoid using your wrist in a bent, extended or twisted position. Instead try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force with which you do the repetitive movement.
- Do exercises to strengthen the hand and arm muscles.
- See a doctor if you feel tingling, numbness or pain in the fingers, hands, wrists or arms. The sooner RSI/CTS is diagnosed, the more likely permanent nerve and muscle damage can be prevented.





## DESCRIPTION

The ECHO product you purchased has been factory pre-assembled for your convenience. Due to packaging restrictions, shield installation and other assembly may be necessary.

After opening the carton, check for damage. Immediately notify your retailer or ECHO Dealer of damaged or missing parts. Use the contents list to check for missing parts.

## CONTENTS

Contents List			
Items	MODELS		
	2400/ 2400 1E	2410/ 2410 1E	2450/ 2450 1E
1 - Power Head	✓	✓	✓
1 - Drive Shaft Assembly	✓	✓	✓
1 - Plastic Bag (co-pack)	✓	✓	✓
- 1, Operator's Manual	✓	✓	✓
- 1, Safety Manual	✓	✓	✓
- 1, Warranty Registration Card	✓	✓	✓
- 1, Limited Warranty Statement	✓	✓	✓
- 1, Plastic shield	✓	✓	✓
- 1, Tool Bag	✓	✓	✓
- 1, 8mm x 10mm wrench	✓	✓	✓
- 1, screw	✓	✓	✓
- 1, locking tool	✓	✓	✓
- 1, bag of 10 cotter pins	✓	✓	✓
- 1, Nylon Trimmer Head	✓	✓	✓
- 1, Safety Goggle	✓	✓	✓
- 1, 2-Stroke Oil Sample, 2.6 oz.	✓	✓	✓
- 1, Shoulder Harness w/hip pad		✓	
- 1, Shoulder Harness w/o hip pad			✓
- 1, Front Handle (L.H.)	✓		✓
- 1, Plastic Bag	✓	✓	✓
- 1, shield plate	✓	✓	✓
- 3, 5mm x 15mm screws (shield mtg.)	✓	✓	✓
- 4, 5mm x 35mm screws (handle mtg.)	✓	✓	✓
- 4, 5mm nuts (handle mtg)	✓	✓	✓
- 1, 3mm Hexagon Wrench (for ground wire inst.)	✓	✓	✓
- 1, Front Handle Support		✓	
- 1, Plastic Bag (for blade use only)		✓	✓
- 1, metal shield		✓	✓
- 1, bracket		✓	✓
- 1, plastic bag		✓	
- 4, 5mm x 35mm screws (handle mgt.)		✓	
- 4, 5mm nuts		✓	
- 1, Plastic Bag		✓	✓
- 3, 5mm x 15mm screws (shield mount)		✓	✓
- 2, 5mm x 8mm screws (bracket to shield)		✓	✓
- 4, 5mm nuts		✓	✓
- 4, 5mm lockwashers		✓	✓

## BLADE TERMS & DEFINITIONS --

### Blade Convertible

Models (SRM-2400) can be converted to utilize blades. Plastic/nylon blades require a "Blade Conversion Kit", which includes a shoulder harness, and steel shield with necessary attaching hardware. Steel/metal blade also require the, "Blade Conversion Kit", plus a "U-Handle Kit" must be installed.

### Blade Capable

Models (SRM-2450) include the "Blade Conversion Kit", therefore they are capable of using plastic/nylon blades when the steel shield is installed and the shoulder harness is used. If steel/metal blades are use, the , "U-Handle Kit" must be installed.

### Dedicated Blade Capable

Models (SRM 2410) include both the "Blade Conversion Kit", and "U-Handle Kit".

## EMISSION CONTROL --

The emission control system for this engine is EM (Engine Modification).

### IMPORTANT ENGINE INFORMATION

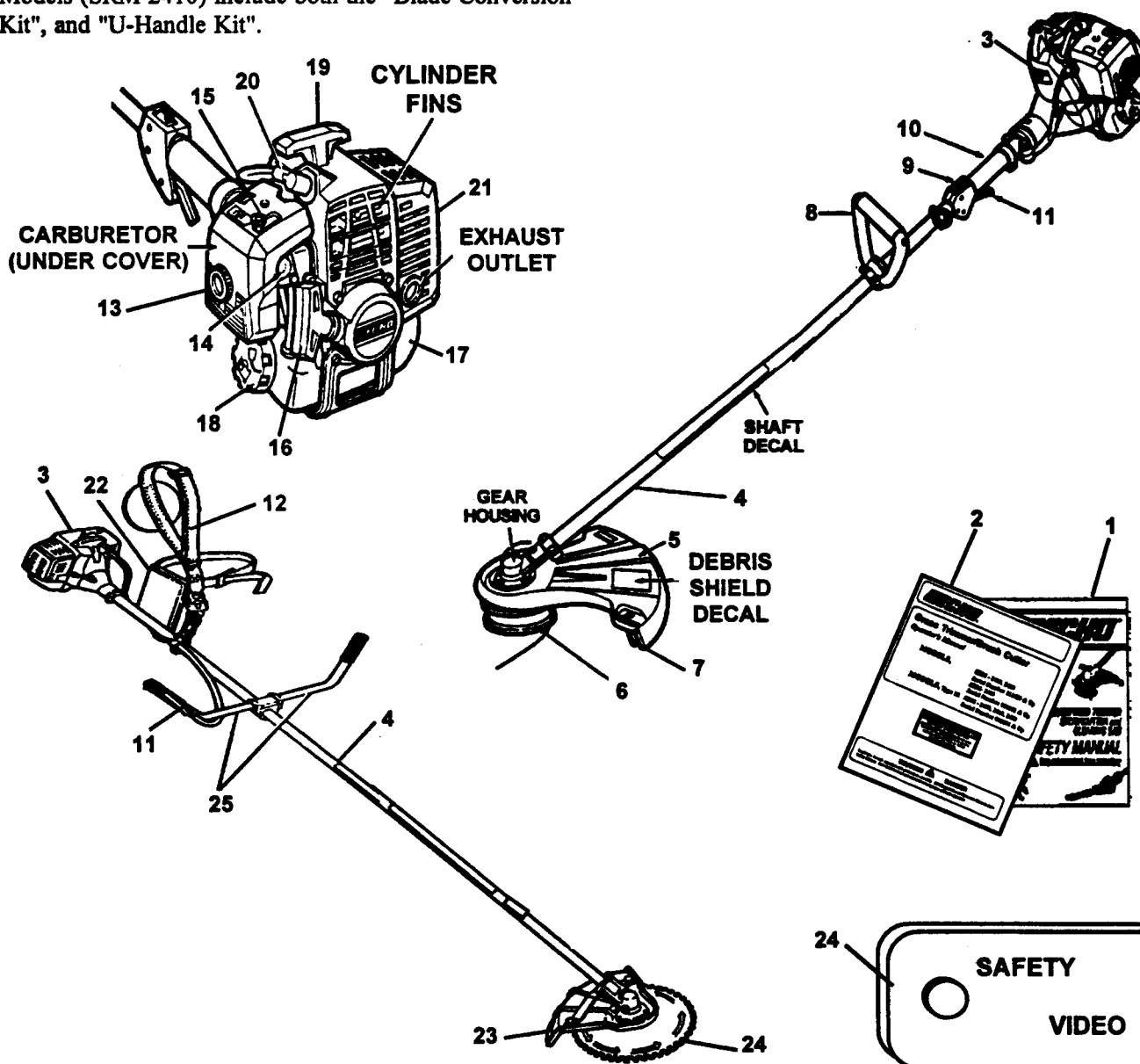
ENGINE FAMILY: TEH0240824RC

DISPLACEMENT: 23.6cc

THIS ENGINE MEETS U.S. EPA PH1 AND 1995-1998 CALIFORNIA EMISSION REGULATIONS FOR ULGE ENGINES. REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

KIORITZ CORP.

Emission Control Label located on Engine (EXAMPLE ONLY, information on label varies by FAMILY).



1. **SAFETY MANUAL** - Included in plastic bag (co-pack). Read before operation and keep in a safe place for future reference to learn proper, safe operating techniques.
2. **OPERATORS MANUAL** - Included in plastic bag (co-pack). Read before operation and keep in a safe place for future reference, i.e., operation, maintenance, storage and specifications.
3. **POWER HEAD** - Includes the Engine, Clutch, Fuel System, Ignition System and Starter.
4. **DRIVE SHAFT ASSEMBLY** - Includes the Rear (right hand) Handle assembly, Gear Housing assembly, Loop (front, left hand) Handle assembly, Flexible Drive Cable (SRM-2450 has a solid steel drive shaft) and Safety Decal.
5. **PLASTIC DEBRIS SHIELD ASSEMBLY** - Included in plastic bag (co-pack). **MUST** be installed on unit before use, see Assembly Instructions. Shield assembly includes the Cut-Off Knife and Safety Decal. Mounts on the Gear Housing Assembly just above the cutting attachment. Helps protect the operator by deflecting debris produced during the trimming operation. This shield must be replaced with the steel shield for blade use.
6. **NYLON CUTTER HEAD** - Contains replaceable nylon trimming line that advances when the trimmer head is tapped against the ground while the head is turning at normal operating speed.
7. **CUT-OFF KNIFE** - Trims line to the correct length: 5" head to end of line- after head is tapped on the ground during operation and the line advances. If trimmer is operated without a cut-off knife the line will become too long - more than the listed length and - the operating speed will slow, the engine overheat and engine damage may occur.
8. **LOOP HANDLE** - The Loop (front) handle is not assembled to the Drive Shaft assembly (some models) and must be positioned for proper cutting attitude and operator comfort.
9. **IGNITION SWITCH** -  
"SLIDE SWITCH" mounted on top of the Throttle Trigger Housing. Move switch FORWARD to RUN, BACK to STOP.
10. **GRIP** - Rear (right hand) handle.
11. **THROTTLE TRIGGER** - Spring loaded to return to idle when released. During acceleration, press trigger gradually for best operating technique. **DO NOT** hold trigger while starting.
12. **SHOULDER HARNESS** - An adjustable strap that suspends the unit from the operator. Using the strap reduces operator fatigue.
13. **AIR CLEANER** - Contains replaceable filter element.
14. **PURGE BULB** - Before starting and after filling the fuel tank, pump purge bulb 3-4 times or until a steady stream of fresh fuel without air is visible through the "clear" fuel return line.
15. **CHOKE** - The choke control lever is located on the top of the choke case. Pullchoke knob up to close the choke for cold starting. Push knob down for the "RUN" position.
16. **STARTER HANDLE** - Pull handle slowly until starter engages, then quickly and firmly. When engine starts, return handle slowly. **DO NOT** let handle snap back or damage to unit will occur.
17. **FUEL TANK** - Contains fuel and fuel filter.
18. **FUEL TANK CAP** - Covers and seals fuel tank opening.
19. **ARM REST** - Provides arm rest during operation and protects arm from the hot engine.
20. **SPARK PLUG** - Provides spark to ignite fuel mixture.
21. **MUFFLER/SPARK ARRESTER** - The muffler controls the exhaust noise while the spark arrester prevents hot, glowing particles of carbon from leaving the muffler where they could possibly start a fire. Built in accordance with SAEJ335, this product is approved for use on U.S. Forest Land and within the states of California, Maine, Oregon and Washington if the spark arresting screen is in place and in good repair.
22. **HIP PAD** - Used to protect hip/leg and clothing when using U-handle equipped unit.
23. **METAL BLADE SHIELD** - Required when unit is equipped with blades. Do not operate unit without shield.
24. **BLADE** - Circular blade for grass, weed or brush cutting applications. Harness, metal shield & U-handles required for blade operation.
25. **U-HANDLE** - Required for metal blade operation.
26. **SAFETY VIDEO** - P/N 99922202540 (Not included with unit and English version only) is available for your review and purchase at a cost of \$5.00 from ECHO, INC. or any authorized ECHO dealer. The video overviews safety precautions and proper operating techniques provided in detail in the Safety Manual, and is supplemental to the Safety Manual. Read and understand the Safety Manual for complete information on safe operation.

**SPECIFICATIONS****SRM-2400, 2410, 2450**

MODEL	SRM-2400/2400 / 1E	SRM-2410/2410 / 1E	SRM-2450/2450 / 1E
Length	1500 mm (59.0 in.)	1500 mm (59.0 in.)	1500 mm (59.0 in.)
Width	330 mm (13.0 in.)	600 mm (23.6 in.)	330 mm (13.0 in.)
Height	360 mm (14.2 in.)	360 mm (14.2 in.)	360 mm (14.2 in.)
Weight (dry) w/Cutter Head	5.5 kg (12.1 lb.)	5.8 kg (12.7 lb.)	5.5 kg (12.1 lb.)
Engine Type	Air cooled, two-stroke, single cylinder gasoline engine		
Bore	34.0 mm (1.34 in.)		
Stroke	26.0 mm (1.04 in.)		
Displacement	23.6 cc (1.44 cu. in.)		
Exhaust	Spark Arrestor Muffler		
Carburetor	Walbro diaphragm model WT w/purge		
Ignition System	Flywheel magneto, capacitor discharge		
Spark Plug	NGK BPM-7Y, Champion CJ-7Y (Gap 0.65 mm (0.026 in.))		
Fuel	Mixed (Gasoline and Two-stroke Oil)		
Fuel/Oil Ratio	50:1 ECHO High Performance, two-stroke air cooled engine oil		
Gasoline	89 Octane unleaded. DO NOT use fuel containing methyl alcohol, more than 10% ethyl alcohol or 15% MTBE.		
Oil	50:1 ECHO High Performance, two-stroke air cooled engine oil		
Fuel Tank Capacity	0.4 lit. (14.2 US fl. oz.)		
Starter System	Automatic Rewind Starter		
Clutch	Centrifugal Type		
Drive Shaft	1/4" Flex Shaft	1/4" Flex Shaft	7mm Spline Steel Shaft
Rotating Direction	Clockwise viewed from top		
Cutter Head	Nylon line head (2-line) with .095 Crossfire™ Line capacity 13m (40 ft.)		
Loop Handle*	Left - D-Loop, Right - Grip when operating with line (Standard SRM-2400, 2450)		
U-Handle	Standard (SRM-2410)		
Shoulder Harness	Standard		
Idle Speed	2400 - 3000 RPM		
Wide Open Throttle Speed (W.O.T.) with Nylon Line Head	8800 - 9300 RPM		
Wide Open Throttle Speed (W.O.T.) with Blade (Blade)	9500 - 11000 RPM		

\* Install and use U-Handle when operating any model with blade.

## ASSEMBLY

### DRIVE SHAFT/POWER HEAD

*Tools Required:* 8mm x 10mm Open End Wrench

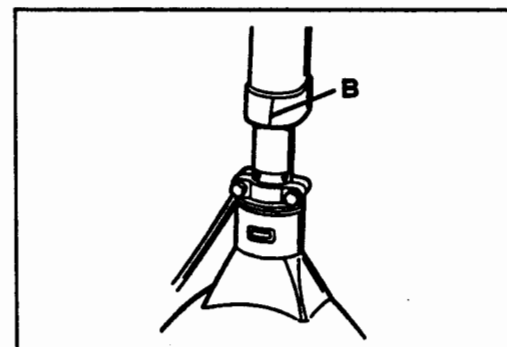
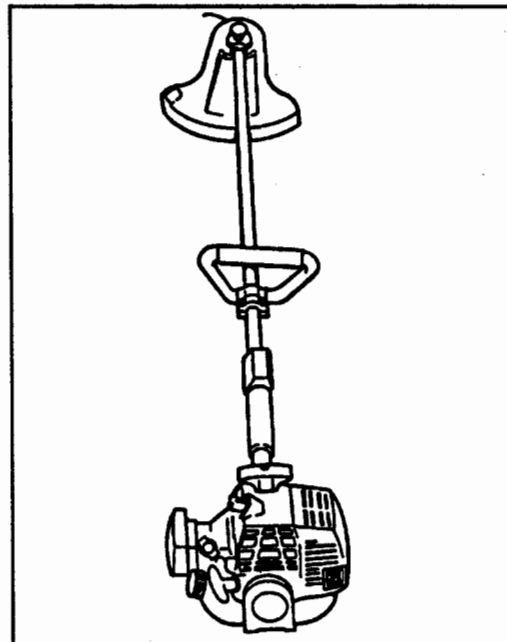
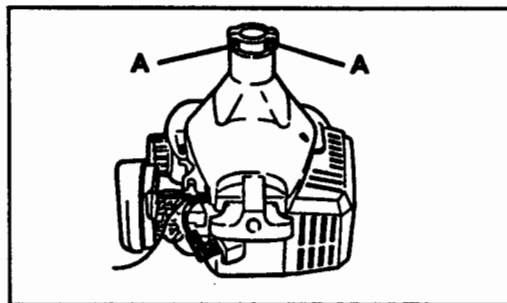
*Parts Required:* Power head, Drive shaft Assembly

1. Stand powerhead upright on a level surface.
2. Loosen, the two (2) bolts (A) at engine drive shaft clamps.
3. Carefully fit driveshaft assembly to engine making sure that inner drive shaft engages into clutch mount..

#### NOTE

Lower gear housing and head assembly must be in line with the engine.

4. Turn drive shaft housing so that line (B) on housing is centered between the two arrows on shaft.
5. Tighten bolts.



### PLASTIC SHIELD INSTALLATION

(for Nylon Line Operation)

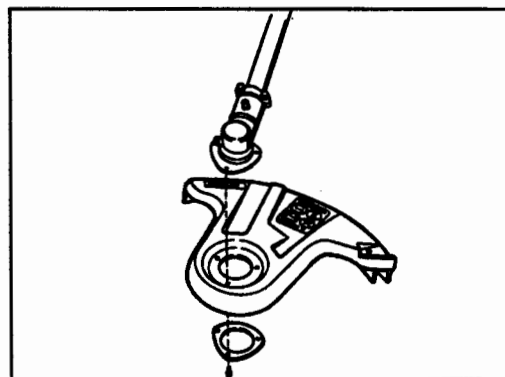
*Tools Required:* Screwdriver.

*Parts Required:* Plastic Shield, Shield Plate, three (3) 5mm x 15mm screws.

## NOTE

The plastic shield is for use with the Nylon Line Head only. Install Metal Shield when using plastic or metal blades.

1. (SRM-2410, SRM-2450) Remove blade nut, washer and split pin from gear housing shaft.
1. (SRM-2400) Remove plastic sleeve from gear housing shaft.
2. Snap the shield on the bottom of the bearing housing flange.
3. Place shield plate on shield, align holes and install three (3) screws.

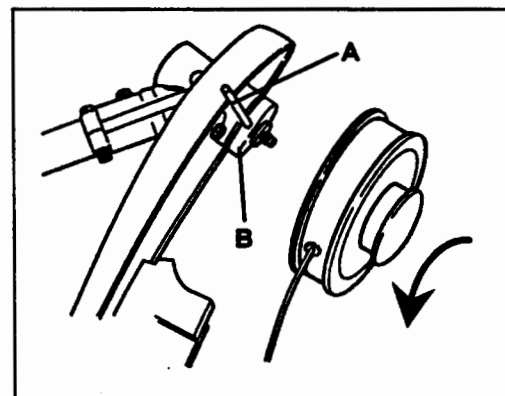


## NYLON LINE HEAD INSTALLATION

**Tools Required:** Head Locking Tool, 17x19mm Srench

**Parts Required:** Nylon Line Head.

1. Align locking hole in upper plate with notch in edge of gear housing and insert head locking tool (A).
2. Remove split pin from hole in PTO shaft.
3. Remove 10mm nut by turning it clockwise (as viewed from underside of grass shield) with 17x19mm srench.
4. Remove lower plate. Retain lower plate, 10mm nut and split pin for future use.
5. Be sure upper plate (B) remains on PTO shaft.
6. Thread line head onto shaft by turning it counter clockwise until head is tight against upper plate.



## BLADE INSTALLATION

All Models.

### IMPORTANT

If non-standard monofilament head, METAL/PLASTIC blade or cultivator etc. is used, THE CARBURETOR MUST BE RE-SET or serious engine damage may occur. See "Carburetor Adjustment" pages 30 - 32 and "Specifications" page 12 of this manual.

## WARNING DANGER

You must install a U-Handle Kit and Blade Conversion kit before operating this unit using metal blades, otherwise serious injury may result.

### Install Metal Shield

**Tools Required:** 8mm x 10mm Open End Wrench, Screwdriver, Srench.

**Parts Required:** Metal Shield, Bracket, 3- 5mm x 15mm screws w/captivated flat and lockwasher (metal shield to gear housing), 2- 5mm x 8mm screws, 4- 5mm nuts, 4- 5mm lockwashers (bracket to shield and bracket to gear housing).

1. If necessary, remove nylon line head and plastic shield.
2. Loosely attach bracket (A) to shield (B) and attach to bottom of gear housing (C) with screws and nuts provided. Tighten all attaching hardware.

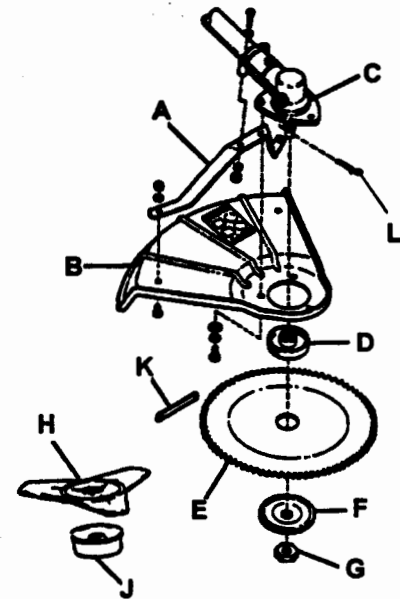
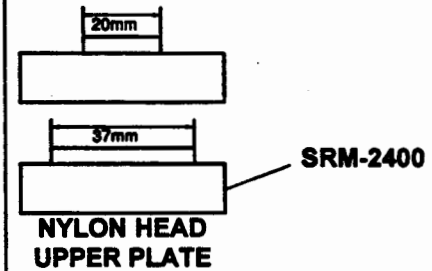
## Install Blade

**Tools Required:** Locking Tool, srench.

**Parts Required:** Upper Plate w/ 20mm pilot, Lower Plate, 10mm Nut w/LH threads, 2mm x 25mm Split Pin (cotter pin).

3. Install upper plate (D) on splined shaft. Blade installation requires use of Upper Plate (D) with 20mm pilot. Upper plate with 37mm pilot of the SRM-2400 should be retained for use with nylon line head.
4. Place Blade (E) over upper plate pilot, install the Lower Plate (F) and 10mm LH nut (G). Tri-Cut Blade (H) is installed with Glide Cup (J).
5. Insert Locking Tool (K) through hole in upper plate and notch in gear housing to prevent splined shaft from turning. Tighten nut and secure with Split Pin (L).

### BLADE UPPER PLATE



## HARNESS CLAMP INSTALLATION

### NOTE

Some models require installation of Harness Clamp. If your unit does not have a clamp, follow these directions.

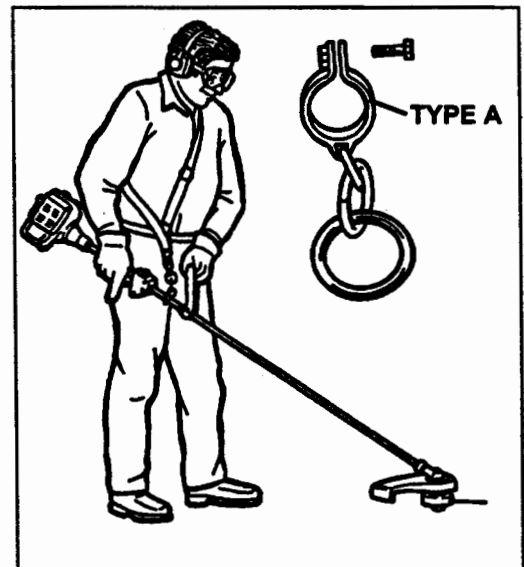
**Tools Required:** Screwdriver, 8mm x 10mm Open End Wrench.

**Parts Required:** Clamp, 4mm x 18mm Hexagon Head, Bolt, Link.

6. Remove shield and gear housing as an assembly.
  - a. Loosen two (2) screws that clamp the gear housing to the drive shaft housing.
  - b. Remove locating screw found at the top of the gear housing. Pull shield and gear housing assembly from the drive shaft assembly.

### IMPORTANT

Prevent flexible drive cable from sliding from drive shaft housing. If cable does slide free, clean dirt from cable and re-lubricate with lithium based grease prior to re-assembly.



7. Remove front handle.
  - a. Remove four (4) screws and nuts and handle support from handle.
  - b. Remove handle.

8. Install clamp.

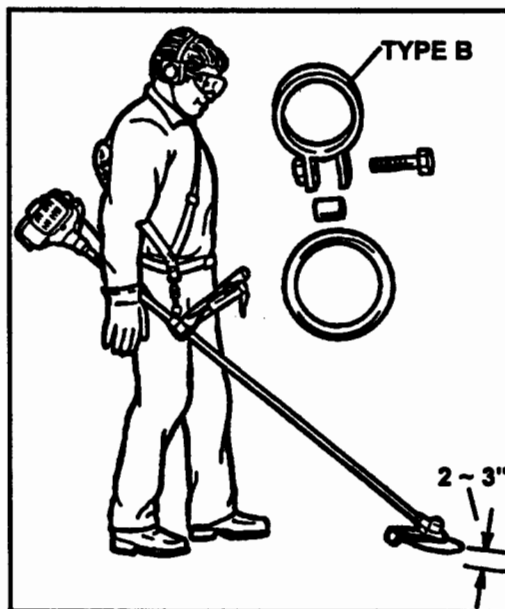
## NOTE

Nylon line head operation uses type (A) clamp, blade operation uses type (B) clamp.

- a. Type (A) clamp installation.
  - Slightly spread clamp and slide up shaft.
  - Install hex head bolt, DO NOT tighten at this time.
- b. Type (B) clamp installation.
  - Slightly spread clamp and slide up shaft.
  - Install single link using spacer, DO NOT tighten at this time.

9. Re-install gear housing and shield and front handle.

10. Balance unit.
  - a. Put on harness and attach unit to harness.
  - b. Slide clamp up or down until unit balances with head approximately 2" - 3" from the ground.
  - c. Tighten clamp screw.

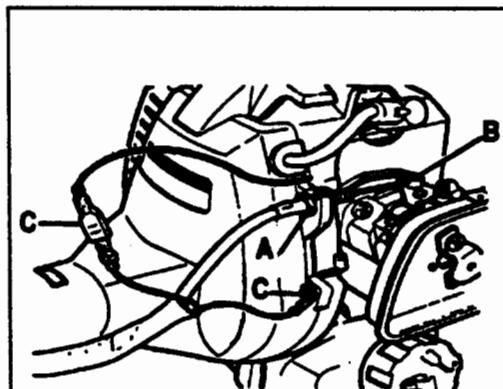


## THROTTLE CABLE AND IGNITION LEADS

SRM-2400, 2450 (For SRM-2410, see U-Handle Installation).

**Tools Required:** 8mm x 10mm open end wrench, 3mm Allen Wrench.

1. Close choke and remove air filter cover.
2. Loosen nut (A) and place threaded end of throttle cable in bracket slot. Finger tighten nut (A).
3. Place inner cable in slot of carburetor swivel (B) and tighten nut (A).
4. Check throttle action. Operate freely? Opens completely? Returns to idle?
5. Connect ignition leads (C), one connector terminal pair and one ring terminal which attaches under fan terminal screw.
6. Re-install air filter and cover.



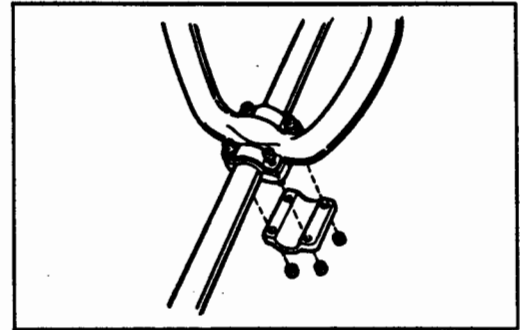


## LOOP HANDLE INSTALLATION

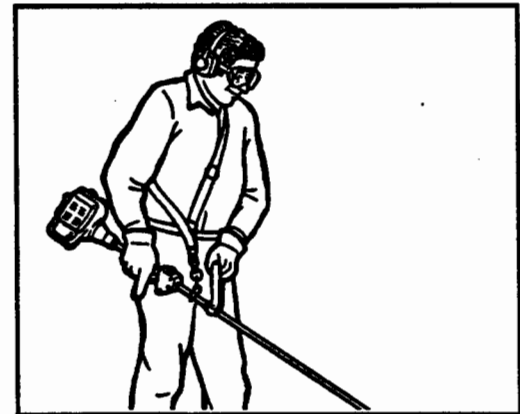
**Tools Required:** Screwdriver.

**Parts Required:** Loop Handle, Handle Support, Four (4) 5mm x 35mm screws with captivated washers, four (4) 5mm nuts.

1. Position loop handle on drive shaft, DO NOT tighten screws yet.



2. Position handle for comfortable operation and secure screws.



## U-HANDLE INSTALLATION

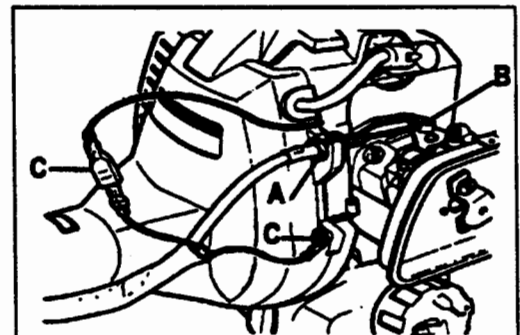
**Tools Required:** 8mm x 10mm Open End Wrench, Screwdriver, 3mm Allen Wrench.

**Parts Required:** U-Handle Kit.

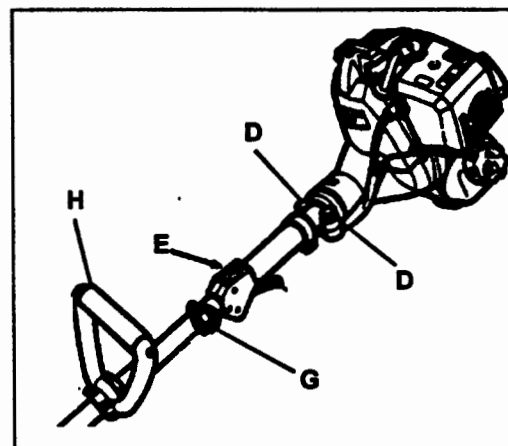
### NOTE

On model 2410 use Steps 1, 11 through 16 only.

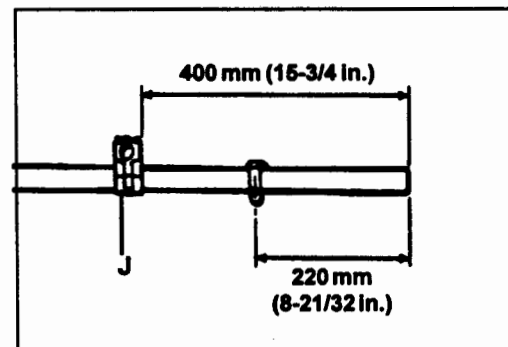
1. Close choke and remove air filter cover.
2. Disconnect ignition stop leads (C).
3. Remove inner throttle cable from carburetor swivel (B).
4. Loosen nut (A) and remove throttle cable bracket.



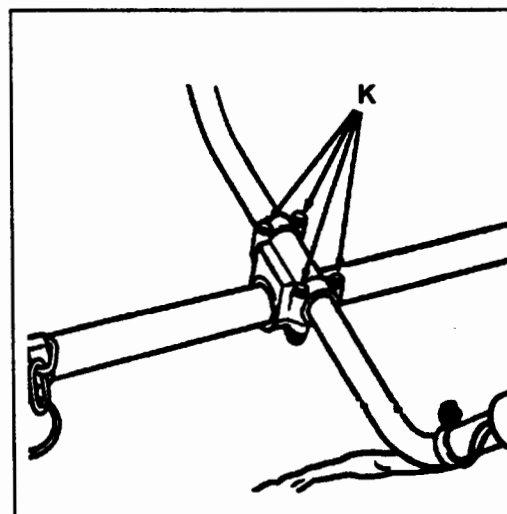
5. Loosen screws (D) and pull drive shaft assembly from clutch case.
6. Loosen four (4) rear handle screws and pull rear handle (E) from the drive shaft assembly.
7. Loosen screw and pull Hook Assembly (G) from drive shaft assembly.
8. Loosen four (4) screws and remove Loop Handle (H).



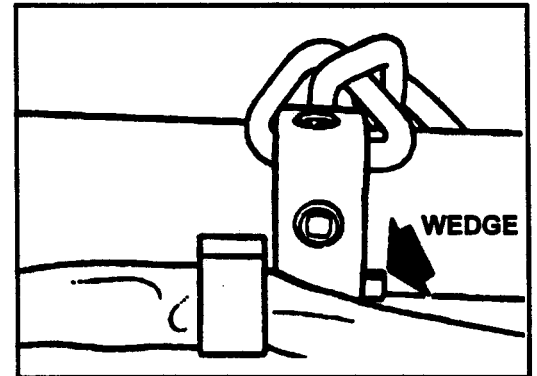
9. Position Handle Bracket (J) 15 3/4 inches (400mm) from engine end of drive shaft. Secure with two (2) 6mm x 30mm bolts.
10. Install Hook. Three loop hook for use with nylon line head, or single ring (included with Blade Conversion Kit) for blade use. Position 8 5/8 inch (220mm) from engine end of drive shaft assembly. DO NOT tighten at this time.



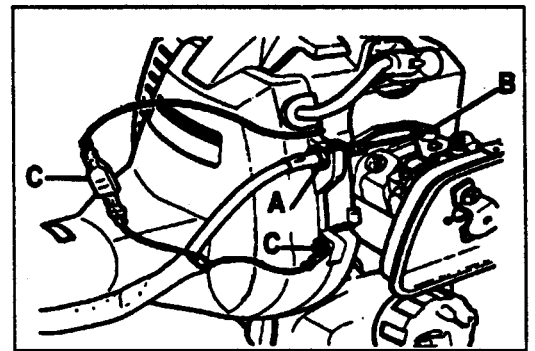
11. Install handles in bracket, place clamp top over handles and secure with four (4) 5mm x 35mm bolts (K).



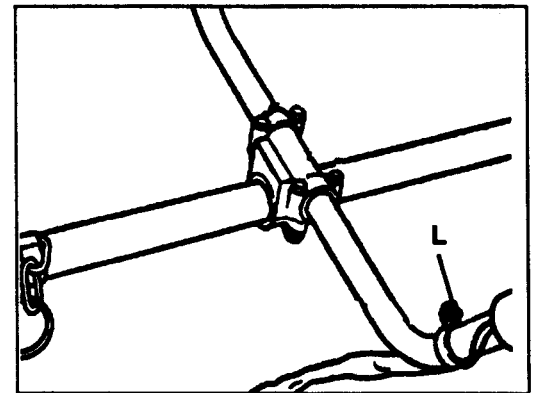
12. Secure throttle cable and leads to drive shaft by sliding wedge under harness hook.
13. Install drive shaft and align gear box, power head and U-handles. Tighten all screws.



14. Place throttle cable in slot in bracket with one nut on each side of bracket. Finger tighten both nuts (A).



15. Attach inner cable to swivel (B). Check throttle for freedom of movement and that wide open throttle / low idle extremes are adjusted properly. If adjustment cannot be achieved with adjusting nuts, the outer cable must be adjusted by moving the Cable Adjustment Clamp (L). Consult with your Echo Dealer for correct adjustment procedure.



16. Attach ignition leads (C).

17. Balance unit.

- a. Put on harness and attach unit to harness.
- b. Slide clamp (M) up or down until unit balances with head approximately 2 - 3" from ground.
- c. Tighten clamp screw.



## PRE - OPERATION

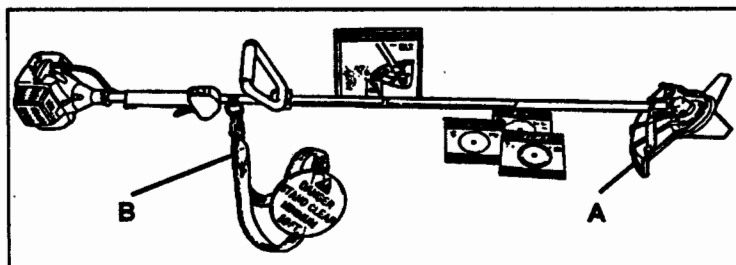
### OPERATION WITH BLADES

#### Preparing the Trimmer/Brush Cutter for Blade Use

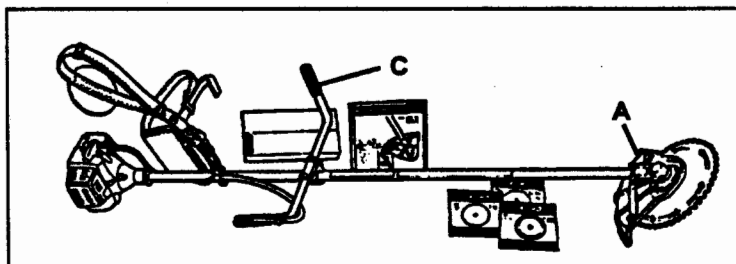
#### WARNING DANGER

Blade use **DEMANDS** specific Brush Cutter configuration. Operation without specified shield and harness can result in serious personal injury.

**Plastic and Nylon Blades Require "Blade Conversion Kit," P/N 99944200400**  
(metal shield [A] and shoulder harness [B]).



**Steel/Metal Blades Require "Blade Conversion Kit" PLUS a**  
**"U-Handle Kit" (C) P/N 35130449230.**

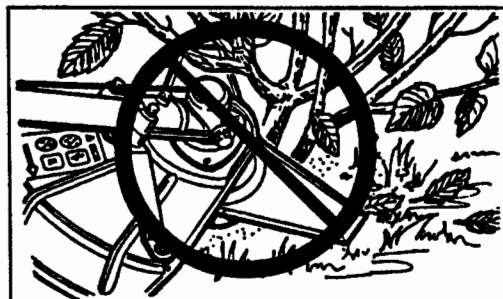


#### Choosing the Correct Blade

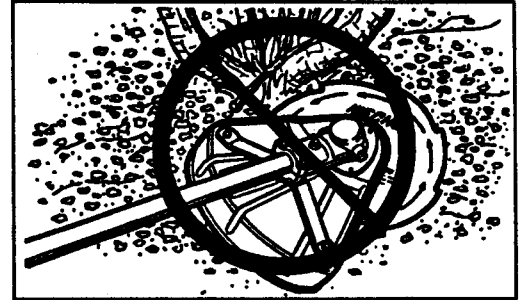
#### WARNING DANGER

The type of Blade used **MUST** be matched to the type and size of material cut. An improper or dull blade can cause serious personal injury. Blades **MUST** be sharp. Dull blades increase the chance of kick out and injury to yourself and bystanders.

**Plastic/Nylon Blades** may be used wherever the nylon line head is used. **DO NOT** use this blade for heavy weeds or brush!



**8 Tooth Weed/Grass Blade (P/N 69600120331)** is designed for grass, garden debris and thick weeds. **DO NOT** use this blade for brush or heavy woody growth, 3/4" in. (19 mm) diameter or larger.

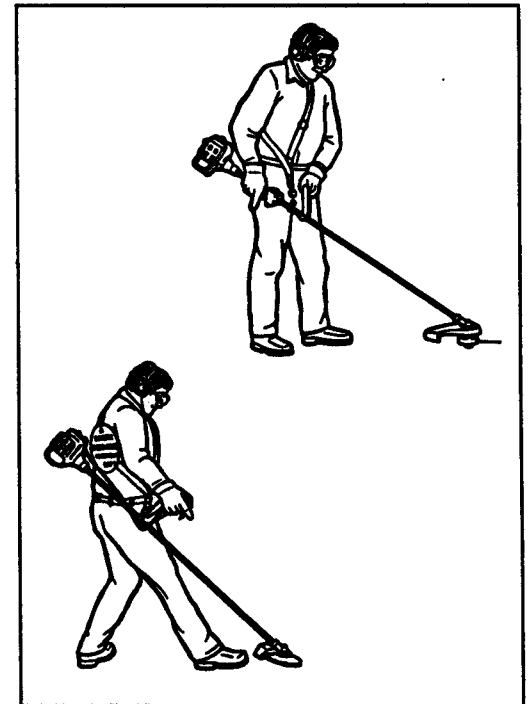


**Brush/Clearing Blade (69500120330)** is designed for cutting brush and woody growth up to 3" in. (76 mm) diameter.



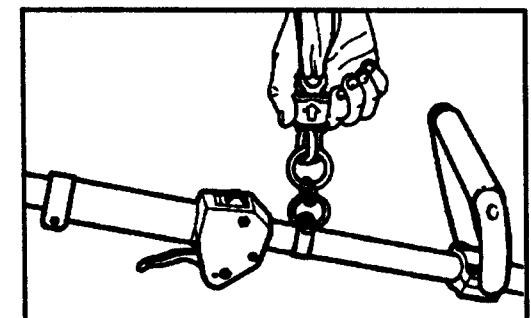
**Use Shoulder/Waist Harness (P/N 30100052131)** Use of the Shoulder/Waist Harness is recommended for **ALL** Trimmer/Brush Cutter use, not just Blade operation. The Shoulder/Waist Harness when used in a trimming operation with nylon line head suspends the trimmer from the operator's shoulder and reduces operator fatigue.

During blade operation, the same fatigue reduction is achieved. Safety to the operator is also enhanced by reducing the possibility of blade contact with the operators hands and feet by restricting trimmer movement.



## NOTE

In case of Emergency, pull up on the Quick Release Collar to disconnect the trimmer from the harness.



## FUEL

### Fuel Requirements

**Gasoline** - Use 89 Octane [ $\frac{R+M}{2}$ ] gasoline or gasohol known to be good quality. Gasohol may contain up to 10% Ethyl (grain) alcohol or 15% MTBE (methyl tertiary-butyl ether). Gasohol containing methyl (wood) alcohol is NOT approved.

**Two Stroke Oil** - A two-stroke engine oil meeting proposed ISO-L-EGD Standard (ISO/CD 13738), must be used. Echo brand Premium 50:1 oil meets this proposed standard. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD approved oil, such as Echo Premium 50:1 Two-stroke Oil, will void the two-stroke engine warranty. (Emission related parts only are covered for two years, regardless of two-stroke oil used, per the statement listed in the EPA Phase I/California Emission Defect Warranty Explanation.)

**Mixing** - Follow directions on the oil container.

### Handling Fuel

#### **WARNING ! DANGER**

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling, or serious personal injury may result.

- Use an approved fuel container.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- NEVER refuel a unit when the engine is HOT!
- NEVER refuel a unit with the engine running.
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tank outdoors over bare ground.

### After Refueling;

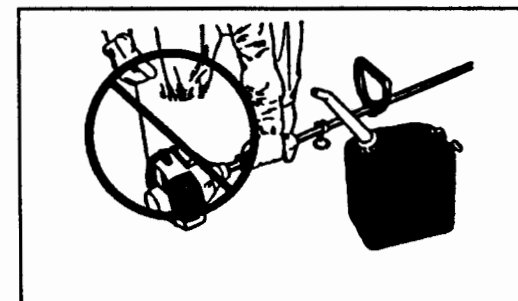
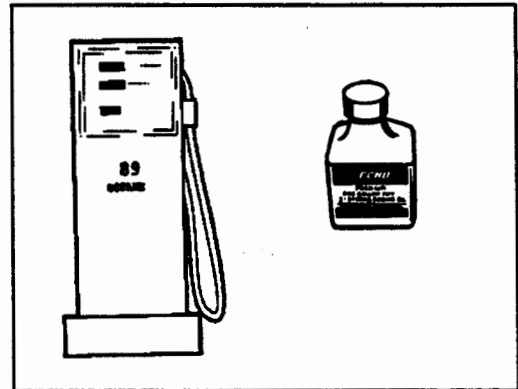
- Wipe any spilled fuel from the unit.
- Move at least 10 ft. (3 M) from refueling location before starting the engine.

### After use;

- DO NOT store a unit with fuel in its tank. Leaks can occur. Return unused fuel to an approved fuel storage container.

### Storage -

Fuel storage laws vary by locality. Contact your local government for the laws affecting your area. As a precaution, store fuel in an approved, air tight container. Store in a well ventilated, unoccupied building, away from sparks and flames. Do not store fuel longer than 30 days.



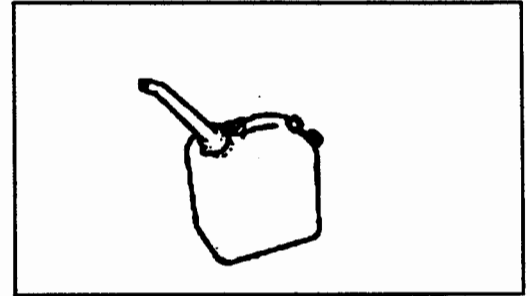
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

## IMPORTANT

Stored fuel ages. Do not mix more fuel than you expect to use in thirty (30) days, ninety (90) days when a fuel stabilizer is added.

## IMPORTANT

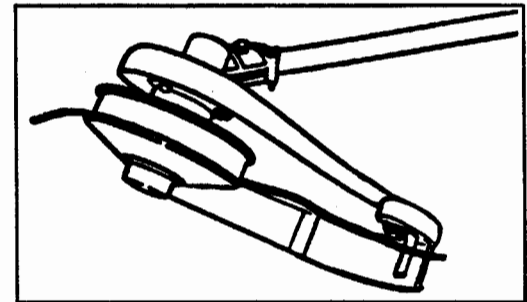
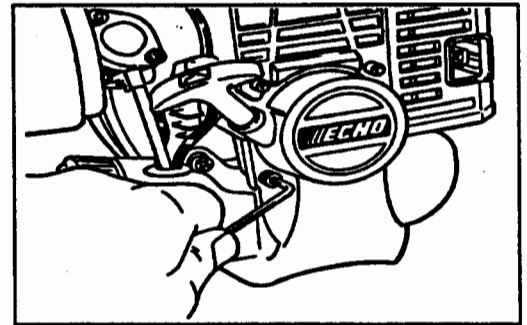
Stored two-stroke fuel may separate. ALWAYS shake fuel container thoroughly before each use.



## EQUIPMENT CHECK

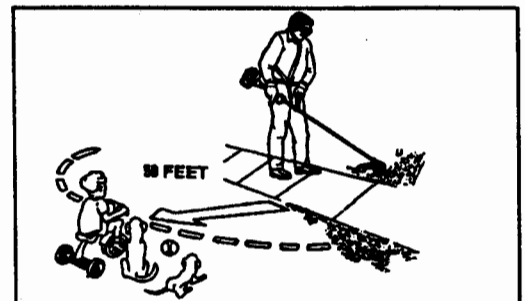
Before operation a complete check of the unit must be performed;

- Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.
- Inspect fuel lines, tank and area around carburetor for fuel leaks. DO NOT operate unit if leaks are found.
- Inspect shield for damage and ensure that the cut-off knife is securely in place. Replace if either is damaged or missing.
- Check that the cutting attachment is firmly attached and in safe operating condition.
- Check that loop (front) handle and shoulder strap/ or shoulder/ waist harness is adjusted for safe, comfortable operation. See Assembly for proper adjustment.



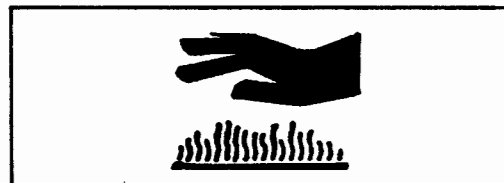
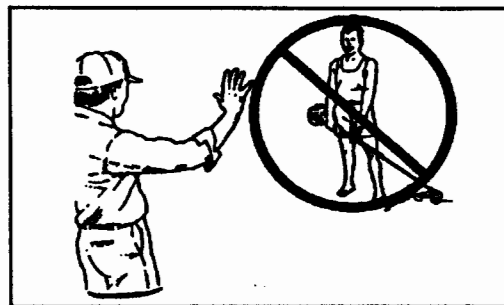
## DETERMINE OPERATION AREA

- Review the area to be trimmed. Look for hazards that could contribute to unsafe conditions.
- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 50 ft. (15M) while the trimmer is in use.



## OPERATION

- Before starting the unit, equip yourself and any other person working within the 50 ft. (15M) Safety Zone with the required Protective Equipment and clothing.
- During operation, the complete unit, especially the drive shaft housing and the bearing housing may become very hot, too hot to touch. Avoid contact during and immediately after operation.



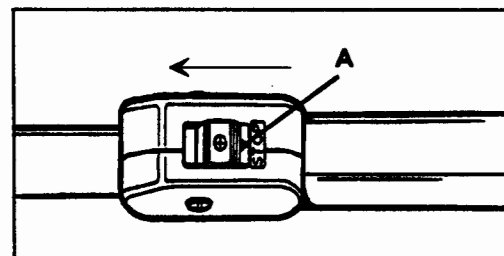
## STARTING COLD ENGINE

### WARNING DANGER

The cutting attachment should not rotate at idle. If attachment rotates, readjust carburetor according to "Carburetor Adjustment" instructions in this manual or see your ECHO Dealer, otherwise serious personal injury may result.

#### 1. **Ignition Switch - Start/Run.**

Move Ignition Switch button (A) forward away from the STOP position.



#### 2. **Close Choke - Cold Start.**

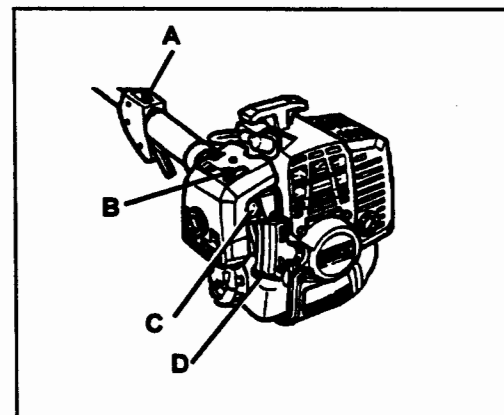
Pull choke knob (B) up to the Cold Start Position.

#### 3. **Purge - Pump Bulb.**

Pump purge bulb (C) until fuel is visible in the "Clear" fuel return line.

#### 4. **Start - Pull Rope.**

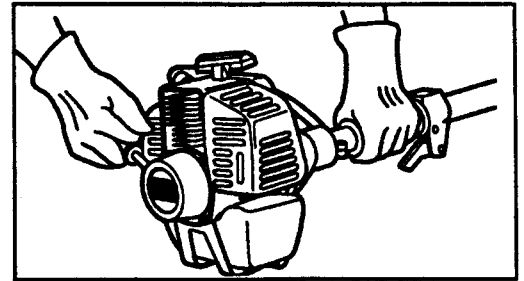
Lay the trimmer on a flat clear area and pull the starter handle (D) until engine fires.





## 5. **Open Choke - Run.**

Push the choke lever back or push the choke knob down to the OPEN - RUN position. Restart engine if necessary and allow to warm up running at idle for several minutes.



## STARTING WARM ENGINE

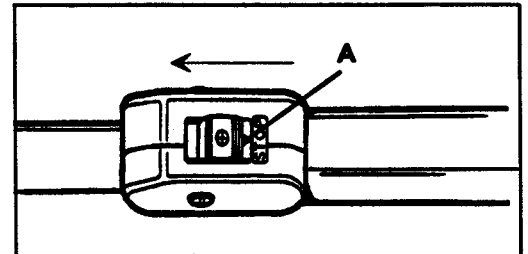
The starting procedure is the same as Cold Start except DO NOT close the choke.

### NOTE

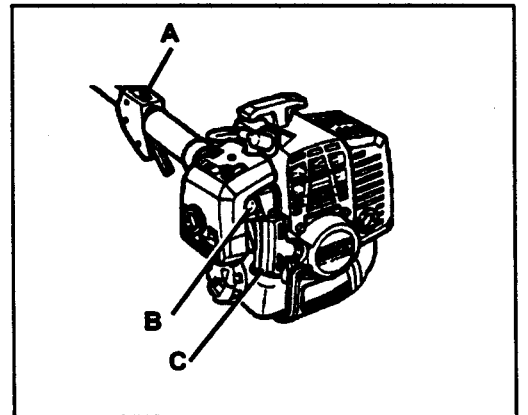
If engine does not start after 4 pulls, use Cold Start Procedure.

## WARNING DANGER

When engine starts, the cutting attachment may rotate even with the throttle trigger in idle (released) position.

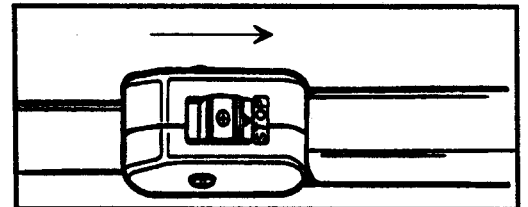


1. **Ignition Switch - Start/Run.** Move Ignition Switch button (A) away from the STOP position.
2. **Purge - Pump Bulb.** Pump purge bulb (B) until fuel is visible in the "Clear" fuel return line.
3. **Start - Pull Rope.** Lay the trimmer on a flat clear area and pull the starter handle (C) until the engine fires.



## STOPPING ENGINE

1. **Release Throttle.** Allow engine to idle for a minute.
2. **Ignition Switch - Stop.** Move ignition switch button backward to STOP position.



## WARNING DANGER

If engine does not stop when ignition switch is moved to STOP position, close choke - COLD START position - to stall engine. Have your ECHO dealer repair ignition switch before using trimmer again.

## MAINTENANCE

### SKILL LEVELS

Your ECHO trimmer is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your trimmer achieve that goal. If you are unsure or are not equipped with the necessary tools, you may want to take your unit to an ECHO Service Dealer for maintenance. To help you decide whether you want to DO-IT-YOUR-SELF or have the ECHO Dealer do it, each maintenance task has been graded.

**Level 1 =** Easy to do. Most required tools come with unit.

**Level 2 =** Moderate difficulty. Some specialized tools may be required.

**Level 3 =** Experience required. Specialized tools are required.

ECHO offers REPOWER Maintenance Kits and Parts to make your maintenance job easier. Below each task heading are listed the various part numbers required for that task. See your ECHO dealer for these parts.

### MAINTENANCE INTERVALS

Component/System	Maintenance Procedure	Before Use	Every Refuel	Daily or Every 4 Hours	3 Months or 100 Hours	6 Months or 300 Hours	Yearly or 600 hours	Date Maintenance Performed
Air Filter	Clean	•		•				
	Replace				•			
Fuel Strainer	Clean/Replace				•			
Fuel Line	Inspect				•			
Carburetor	Inspect/Rebuild					•		
	Replace						• (1)	
Choke System	Inspect/Clean/Replace		•					
Cooling System	Inspect	•		•				
	Clean	•		•				
Muffler Spark Arrestor	Inspect				•			
	Clean				•			
Drive Shaft (Flex Cable Models)	Grease				•			
Gear Housing	Grease				•			
Starter Rope	Inspect/Clean	•						
Fuel Leaks	Inspect	•						
	Repair	•						
Spark Plug	Clean				•			
	Replace					•		
Ignition System	Clean/Replace	No Maintenance required for coil and flywheel						
Screws/Nuts/Bolts	Inspect/Tighten/Replace	•						

### IMPORTANT

Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.

(1) Replacement will be required for Commercial use after 600 hours. For Consumer Use, cleaning every 6 months is required. Cleaning includes Rebuild Kits.

## AIR FILTER

### Level 1.

**Tools required:** Cleaning brush, 1" or 2" medium bristle paint brush.

**Parts required:** 90030 REPOWER AIR & FUEL FILTER KIT.

1. Close choke (Cold Start Position). This prevents dirt from entering the carburetor throat when the air filter is removed.  
Brush accumulated dirt from the air cleaner area.
2. Remove the air cleaner cover. Clean and inspect the element for damage. If element is fuel soaked and very dirty, replace.
3. If element can be cleaned and reused, be certain it:  
-still fits the cavity in the air cleaner cover.  
-is installed with the original side out.

### NOTE

Carburetor adjustment may be needed after air filter cleaning/replacement.

## FUEL FILTER

### Level 1.

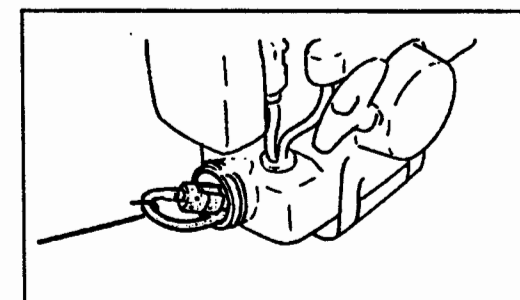
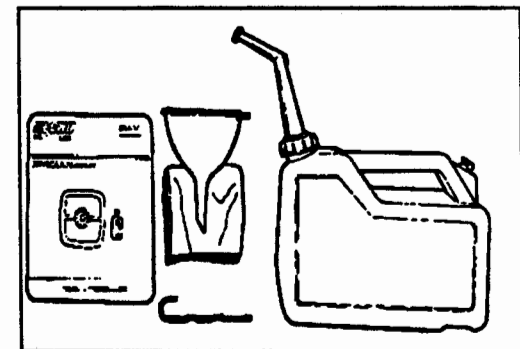
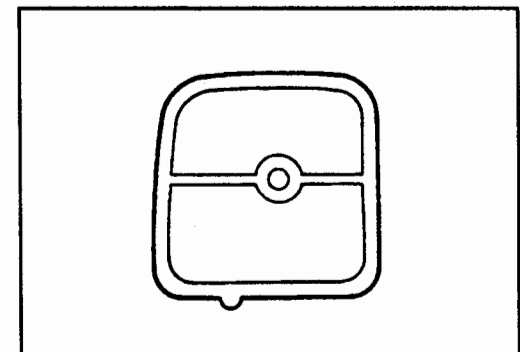
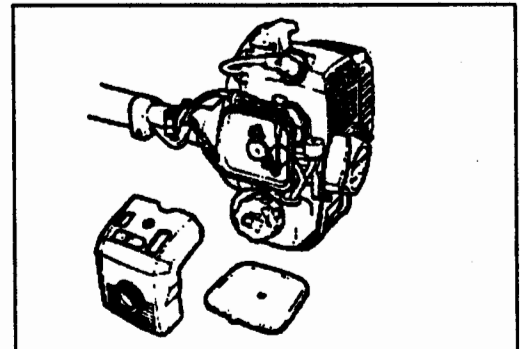
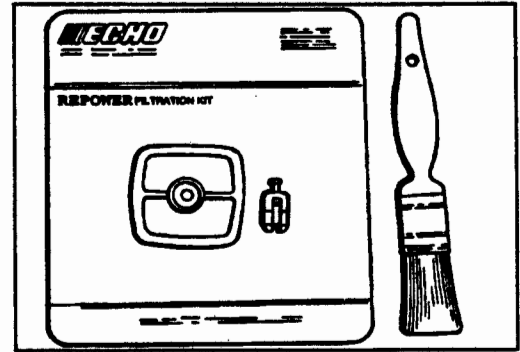
**Tools required:** Fuel line hook. 8"-10" (203-254 mm) length of wire with one end bent into a hook. Clean rag, funnel, and an approved fuel container.

**Parts required:** 90030 REPOWER AIR & FUEL FILTER KIT.

### WARNING DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling.

1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.
2. Use the "fuel line hook" to pull the fuel line and filter from the tank.
3. Remove the filter from the line and install the new filter.



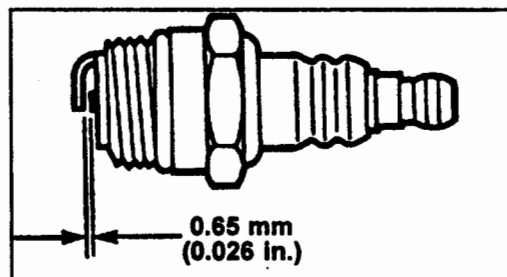
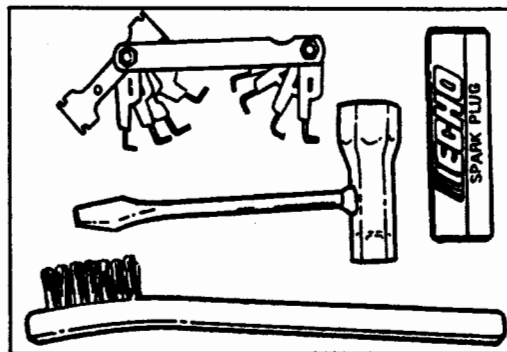
## SPARK PLUG

### Level 2.

**Tools Required:** Srench (combination socket wrench & screw driver supplied with unit) Feeler gauge, preferably a wire gauge. Brush.

**Parts Required:** Spark Plug, Champion CJ-7Y or NGK BPM-7Y

1. Remove spark plug and check for fouling, worn and rounded center electrode.
2. Clean the plug or replace with a new one. DO NOT sand blast to clean. Remaining sand will damage engine.
3. Adjust spark plug gap by bending outer electrode.



## COOLING SYSTEMS CLEANING

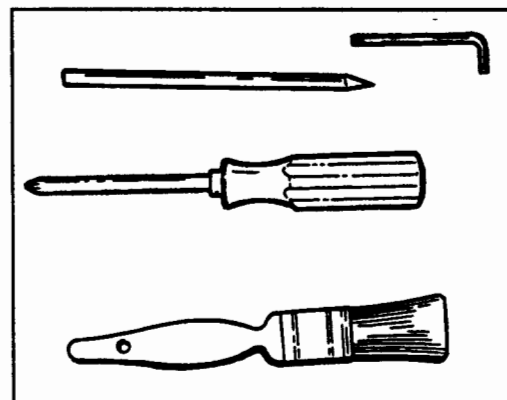
### Level 3.

**Tools required:** Phillips Screwdriver, 3 MM Allen Wrench, Pointed Wood Stick, Cleaning Brush, 1"-2" medium bristle paint brush.

**Parts Required:** None if you are careful.

### IMPORTANT

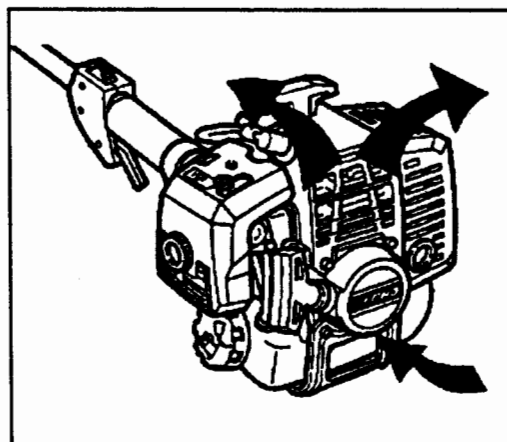
To maintain proper engine operating temperatures, cooling air must pass freely through the cylinder fin area. This flow of air carries combustion heat away from the engine.



Overheating and engine seizure can occur when:

- Air intakes are blocked, preventing cooling air from reaching the cylinder, or
- Dust and grass build up on the outside of the cylinder. This build up insulates the engine and prevents the heat from leaving.

Removal of cooling passage blockages or cleaning of cooling fins is considered "Normal Maintenance". Any failure attributed to lack of maintenance is not warranted.



1. Remove spark plug lead & throttle cable end from the carburetor swivel.
2. Remove the four screws that retain the cover. Two at the top of the starter, two on either side of the front. Lift the cover from the engine and lay to the front of the trimmer.

## NOTE

The throttle cable remains assembled to the cover and the spark plug lead and grommet remain installed.

## IMPORTANT

DO NOT use a metal scraper to remove dirt from the cylinder fins.

3. Use the wooden stick or brush to remove dirt from the cylinder fins.
4. Remove grass and leaves from the grid between the starter and fuel tank.

## NOTE

When installing the cover, be certain the tab of the metal deflector shield is in the slot of the cover.

## EXHAUST SYSTEM

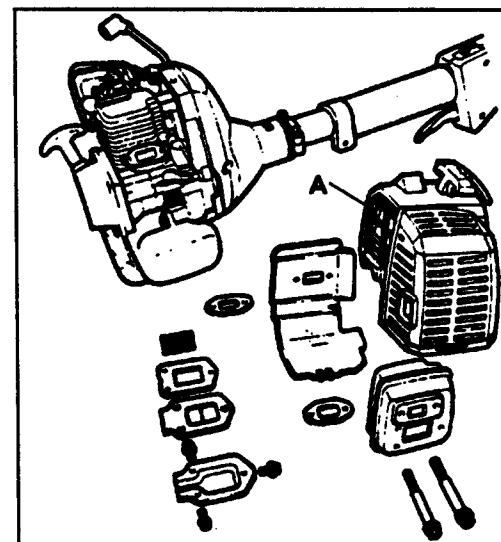
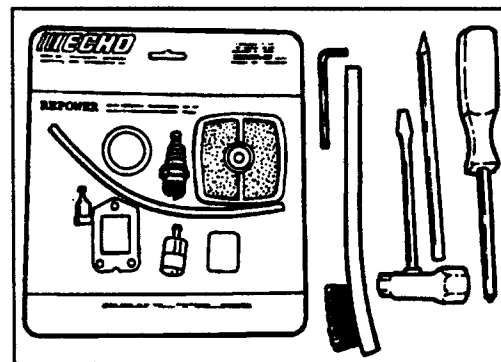
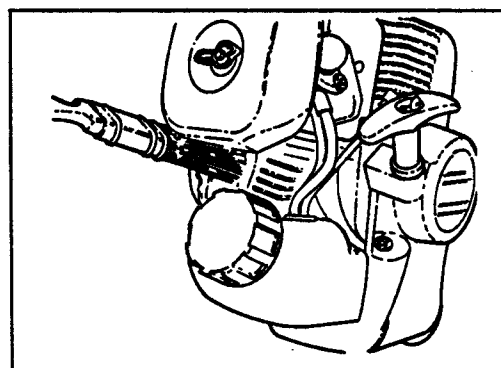
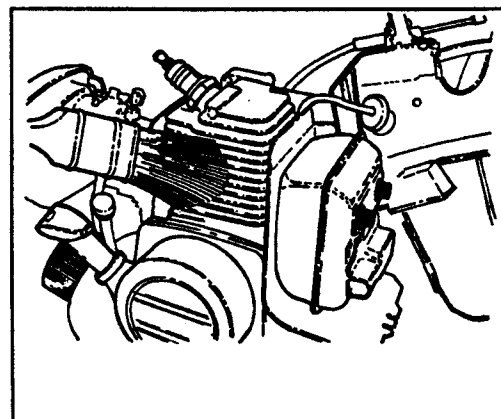
### Level 3.

**Tools Required:** Phillips Screwdriver. Srench. 10mm Open end wrench. Soft metal brush. Wooden carbon scraper. 3mm Allen Wrench, 4mm Allen Wrench.

**Parts Required:** 90029 REPOWER MAINTENANCE KIT.

### Exhaust Port

1. Remove engine cover (A). See "Cleaning Cooling System" pages 28 & 29 for step by step instructions.
2. Remove two socket head cap screws. Lift muffler and gaskets away from engine.



3. Place piston at Top Dead Center (TDC) to prevent carbon/dirt from entering cylinder.

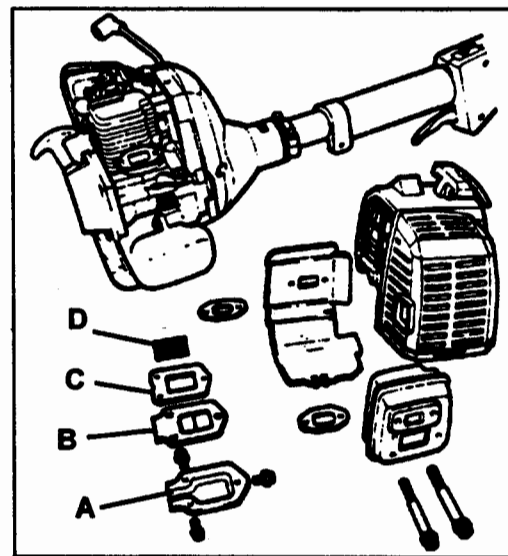
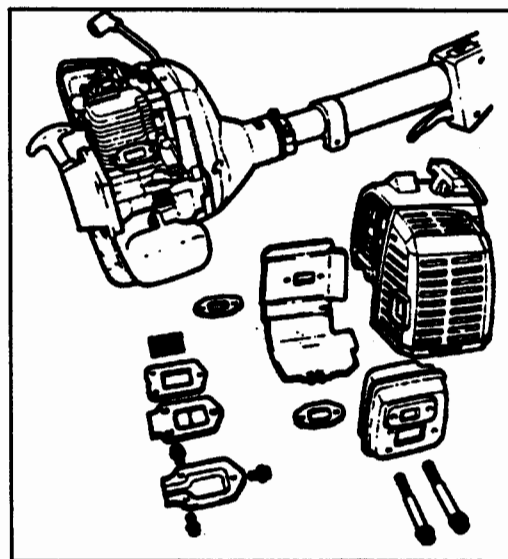
## **IMPORTANT**

DO NOT use a metal tool to remove carbon deposits. Use extreme care not to scratch piston.

4. Inspect exhaust port for carbon buildup & clean using a wooden stick.
5. Check that all loose carbon is removed from port.
6. Re-assemble using new gaskets.

## **Spark Arrester Screen**

1. Remove spark arrestor screen cover (A), screen holder (B), gasket (C) and screen (D) from muffler body.
2. Clean carbon deposits from screen and muffler components.
3. Replace screen if it is cracked, plugged or has holes burned through.



## **CARBURETOR ADJUSTMENT**

### ***Type 1E Models***

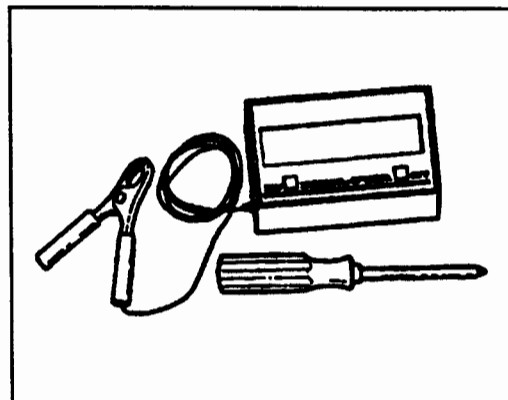
#### **Level 2.**

**Tools required:** Screwdriver, Tachometer (ECHO P/N 99051130017).

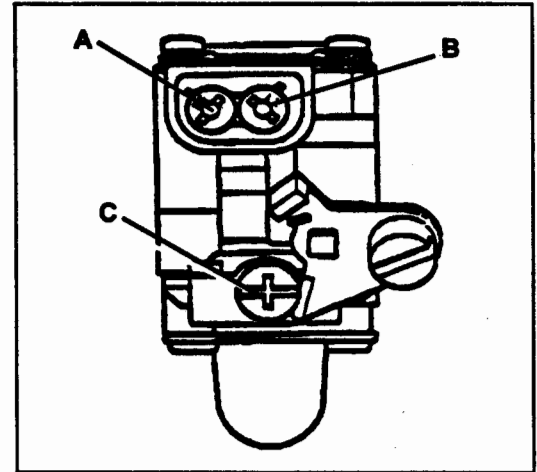
**Parts required:** None.

#### **NOTE**

Every unit is run at the factory and the carburetor is set in compliance with EPA Phase 1 and California Emission Regulations. In addition, the carburetor is equipped with HI and LO needle adjustment limiters that prevent settings outside acceptable limits.



1. Before adjusting the carburetor, clean or replace the air filter and spark arrester screen.
2. Trimmer line must be extended to the cut-off knife.
3. Start engine and run for several minutes to reach operating temperature.
4. Stop engine. Turn HI speed needle (A) CCW (counter clockwise) to stop. Turn LO speed needle (B) midway between full CCW and CW (clockwise) stops.
5. Idle Speed Adjustment.
  - Start engine and turn idle speed adjustment screw (C) CW until the cutting attachment begins to turn, then turn the screw CCW until attachment stops turning. Turn screw (C) CCW an additional 1/4 turn.
6. Accelerate to full throttle for 2-3 seconds to clear excess fuel from engine then return to idle. Accelerate to full throttle to check for smooth transition from idle to full throttle. If engine hesitates, turn LO needle (B) CCW an additional 1/8 turn and repeat acceleration. Continue adjusting until smooth acceleration results.
7. Check HI speed RPM at W.O.T. (Wide Open Throttle). HI speed RPM should be set to the specifications found on Page 12 "Specifications" of this manual for the type of cutting attachment on this unit.
8. Check idle speed and reset if necessary. If a tachometer is available, idle speed should be set to the specifications found on page 12 "Specifications" of this manual.



## **WARNING** **DANGER**

When carburetor adjustment is completed, the trimmer head or blade should not turn at idle, otherwise serious personal injury may result.

## **CARBURETOR ADJUSTMENT**

### ***Type 1 Models (Without Limiter Caps)***

**Tools Required:** Screwdriver, Tachometer (ECHO P/N 90051130017).

#### **NOTE**

If carburetor has limiter caps follow "Carburetor Adjustment" procedures for Type 1E models on previous page.

## Idle Speed Adjustment

Turn "idle" speed adjustment screw (A) CW (clockwise) until cutting attachment begins to turn, then turn screw out CCW (counter clockwise) until attachment stops turning. Turn screw out, CCW an additional 1/4 turn.

### WARNING DANGER

Trimmer head or blades must not turn when unit is idling, otherwise serious personal injury may result.

## Basic Setting

1. Stop engine and turn both LO (B) and HI (C) needles in, CW until they stop and are lightly seated.

### IMPORTANT

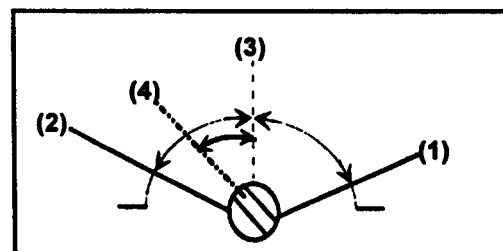
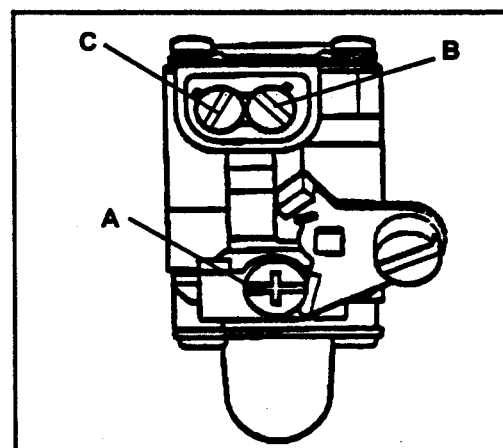
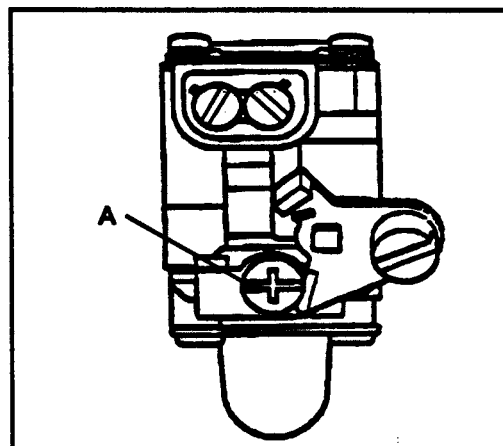
DO NOT over tighten needles. Forcing them to tighten will damage the carburetor.

2. Turn LO (B) needle out, CCW 2-1/2 turns. Turn HI (C) needle out CCW 2-3/4 turns.

## Fine Tuning

(Requires Accurate Tachometer)

1. Start engine and allow to warm to operating temperature (minimum 2 - 3 minutes) varying engine speed from idle to full throttle.
2. Always begin fine tuning with LO (B) needle.
  - a. Lean drop-off - With engine idling, turn LO (B) needle slowly CW (in) to lean drop-off point. RPM will increase, then abruptly drop-off. Note this position. (1)
  - b. Rich drop-off - With engine idling, slowly turn LO (B) needle CCW (out) to rich drop-off point. RPM will increase then gradually slow and drop-off. Note this position. (2)
  - c. Final setting - Set needle at mid point between lean rich drop-off points. (3)
  - d. Turn needle 1/8 turn CCW (out) making mixture slightly richer. (4)
3. HI speed adjustment.  
Adjust HI (C) needle with tachometer. Refer to Wide Open Throttle RPM settings listed in "Specifications" on page 12.
4. Check idle speed and reset if necessary. If tachometer is available, idle speed should be set to the specifications found on page 12 "Specifications" of this manual.



### WARNING DANGER

When carburetor adjustment is completed, the trimmer head or blade should not turn at idle, otherwise serious personal injury may result.



## LUBRICATION

### LEVEL 1.

**Tools Required:** 8 mm Open End Wrench, Screwdriver, Clean Rag.

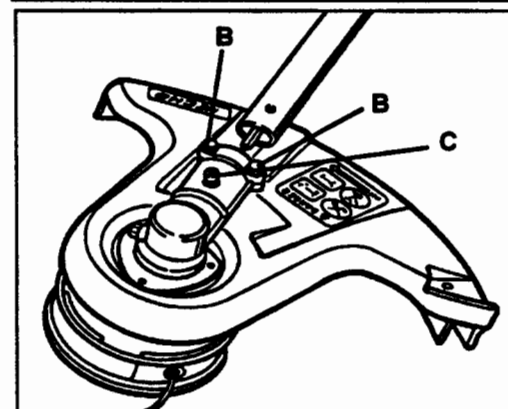
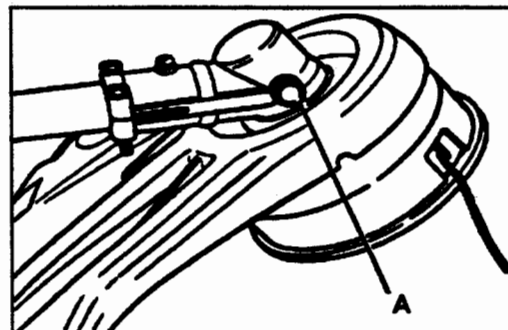
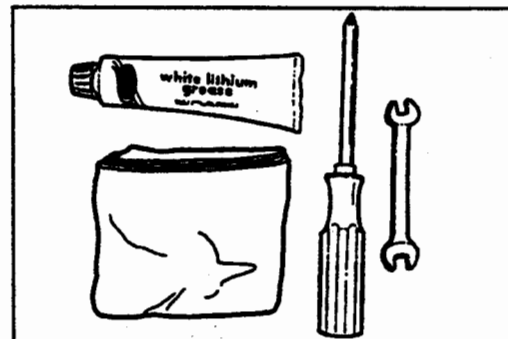
**Parts Required:** Lithium Base Grease.

### Gear Housing

1. Clean all loose debris from gear box.
2. Remove plug (A) and check level of grease.
3. Add grease if necessary, DO NOT over fill.

### Drive Shaft (SRM-2400, 2410 Only)

1. Loosen two (2) screws (B) and remove center locating screw (C). Pull gear box and shield from drive shaft.
2. Pull flexible cable from the drive shaft housing, wipe clean and recoat with a thin coating of [1/2 oz. (15 ml)] of high temperature automotive grease.
3. Slide the flexible cable back in the drive housing. DO NOT get dirt on the flex shaft.
4. Install the gear housing and shield assembly.



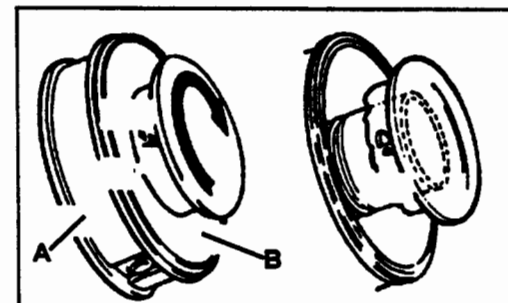
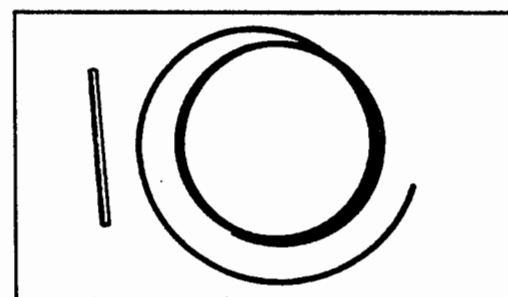
## NYLON LINE REPLACEMENT

### LEVEL 1.

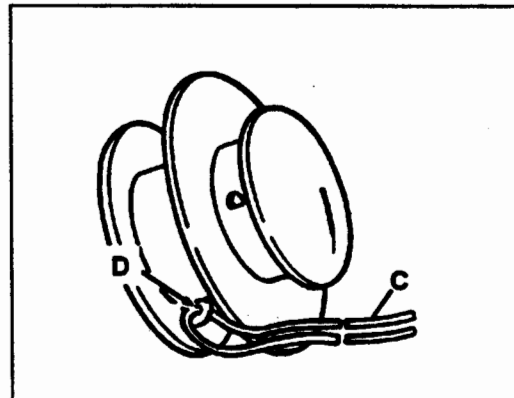
**Tools Required:** Head locking tool (if head is to be removed)

**Parts Required:** ECHO 0.095" Nylon Trimmer Line 40 feet (12m) long.

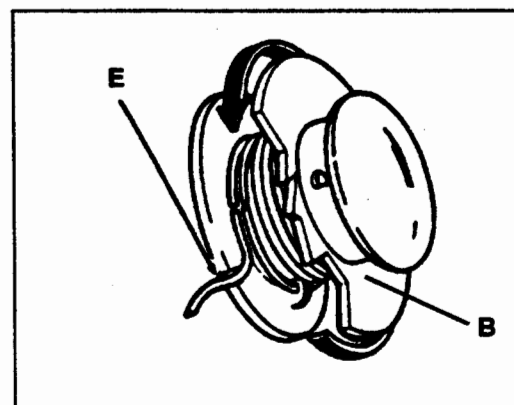
1. Hold drum (A) and turn spool (B) CW (clockwise) until it stops. Pull spool from drum. DO NOT push in on spool when turning.



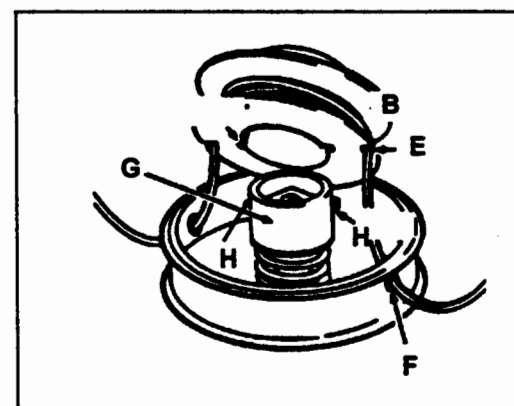
2. Use one piece of new nylon line (C) 40 ft. (12m) long and thread through the molded loop (D) on the spool. Pull line tight and adjust so one end is 6 in. (15 cm) longer than the other.



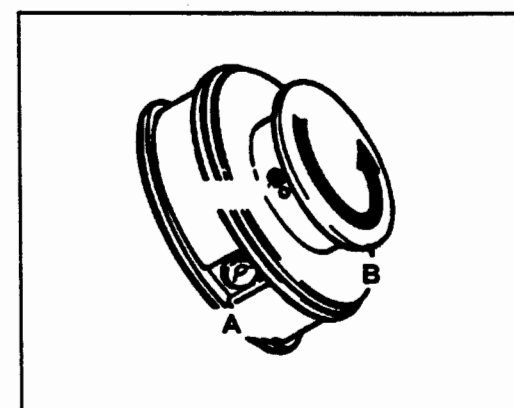
3. Hold the spool, opening toward you. Place index finger between the two strands and wind line, tightly and evenly, in direction of arrow marked "CC".
4. Stop when approximately 6" - 8" (15-20 cm) line (C) remains and place ends of line in notches (E) in spool (B).



5. Feed ends of line through housing eyelets (F) and place spool (B) over drive (G). Align pegs (H) on drive with notches in spool and push spool into drum.
6. Pull on both lines until they come free from notches (E) in spool.



7. Hold drum (A) firmly and turn spool (B) CCW (counterclockwise) until it stops. DO NOT push in on spool when turning.
8. Pull both lines out and trim to cut-off knife length.



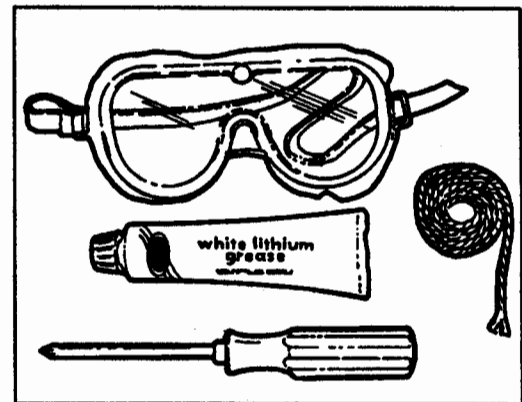
## STARTER ROPE REPLACEMENT

### LEVEL 3

**Tools required:** SAFETY GOGGLES, Screwdriver, 3mm Allen Wrench.

**Parts Required:** 35 in. (890 mm) ECHO Starter Rope, Lithium based grease.

1. Remove four (4) screws holding starter assembly on engine, remove starter.
2. Hold starter drum in place and cut off or untie knot (A). Allow the drum to slowly turn until all spring tension is relieved.



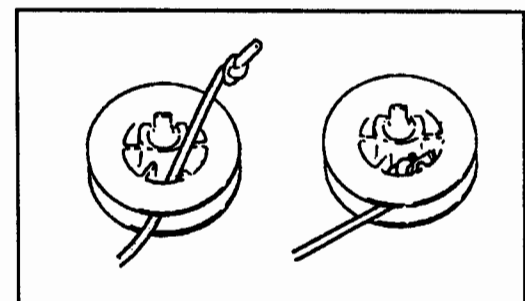
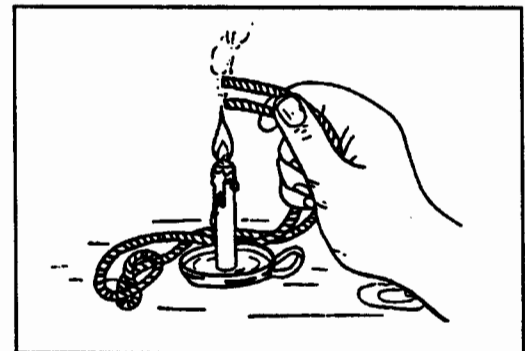
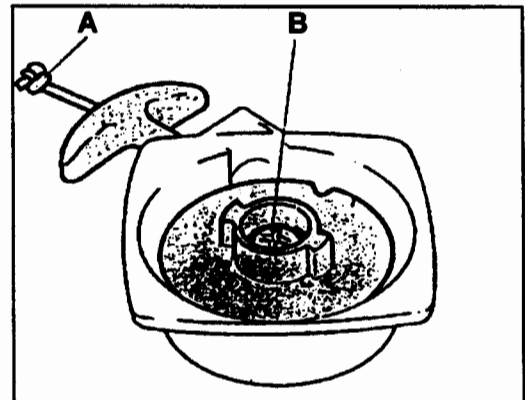
### WARNING DANGER

The spring inside the starter is under tension. DO NOT remove screw (B) until spring tension is relieved.

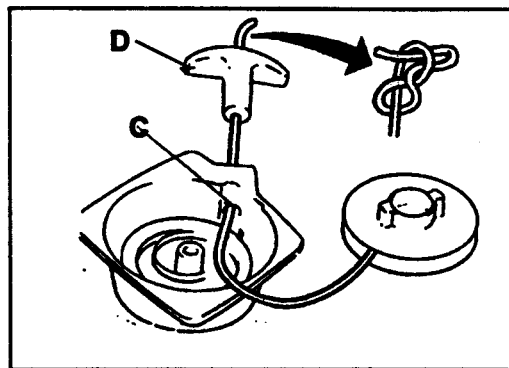
### IMPORTANT

The spring must not come out with the drum. If resistance is felt when lifting the drum, STOP! See your Authorized ECHO Service Dealer for help.

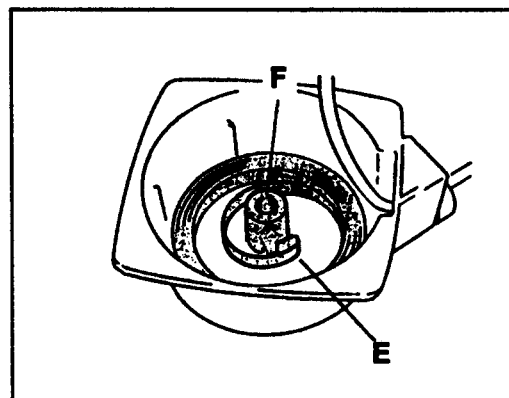
3. Remove screw (B), turn drum slightly clockwise and lift carefully and slowly away from spring.
4. Remove the old starter rope and prepare the new rope by first heating both ends to prevent fraying.
5. Pass one end of the rope through the opening of the drum and tie a knot. Press knot and end of rope in cavity of drum.



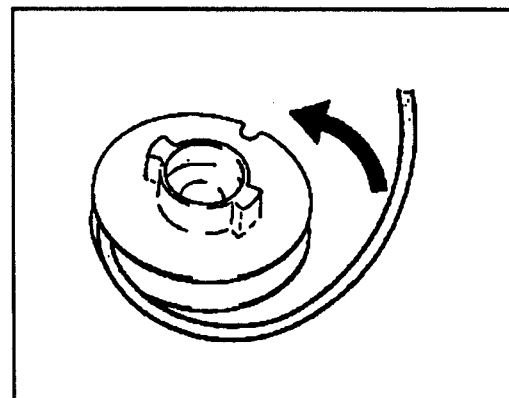
6. Thread the rope through the eyelet in the housing (C) then through the starter handle (D). Follow the illustration and tie another knot in the free end of the rope. Pull the knot into the handle.



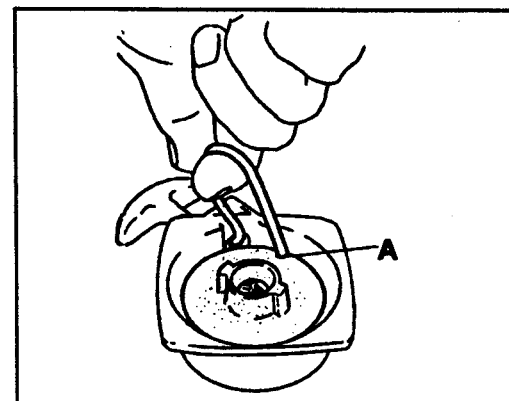
7. Check that the hook (E) on the end of the spring touches the post (F). Lightly grease the top of the spring and the post.
8. Hold the drum pawl side up and wind the rope on the drum counterclockwise, four (4) turns.



9. Install drum. The loop in the spring must engage the slot in the drum. Replace the screw and washer.



10. Hold the rope in the notch and rotate the drum counterclockwise several turns.
11. Hold the drum to prevent it from rewinding, pull the excess rope taught with the handle and allow to rewind slowly.
12. Pull rope several times to check spring tension. If rope does not rewind fully, repeat 10.
13. Pull rope out all the way. Drum must be able to turn an additional 1/2 turn counter clockwise. If drum does not turn, see your Authorized ECHO Service Dealer.



14. Install starter and test.

### SHARPENING METAL BLADES

Three styles of metal blades are approved for use on the ECHO Brushcutter. The 8-tooth blade can be sharpened during normal maintenance. The clearing blade and 80 tooth blade require professional service.

Before sharpening, CLOSELY inspect blade for cracks (look at the bottom of each tooth and the center mounting hole closely), missing teeth and bending. If ANY of these problems are discovered, replace the blade.

When sharpening a blade, always remove the same amount of materials from each tooth to maintain balance. A blade that is not balanced will cause unsafe handling due to vibration and can result in blade failure.

#### 8-tooth Blade

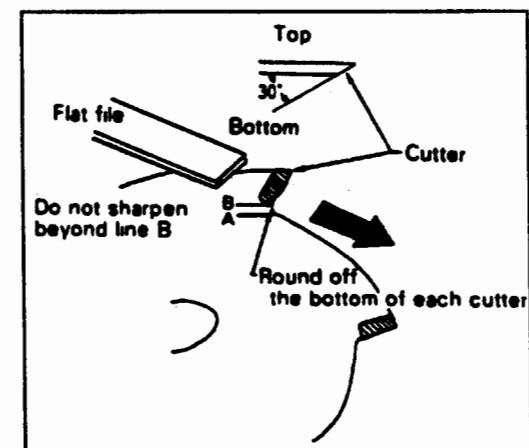
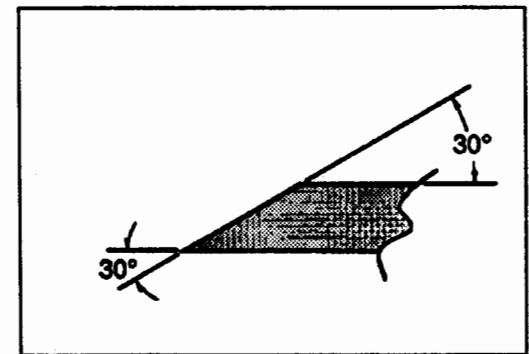
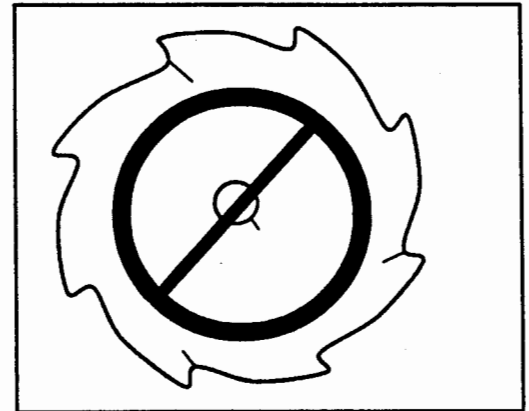
**Tool required:** Flat file (preferred). Electric grinder if special care is used. Round (rat tail) file for gullet (radius).

1. File each tooth at a 30 degree angle a specific number of times, eg. 4 strokes per tooth. Work your way around the blade until all teeth are sharp.
2. DO NOT file the 'gullet' (radius) of the tooth with the flat file. The radius must remain. A sharp corner will lead to a crack and blade failure.

#### **IMPORTANT**

If an electric grinder is used, use care not to overheat teeth, do not allow tips/tooth to glow red or turn blue. DO NOT place blade in cooling water. This will change the temper of the blade and could result in blade failure.

3. After sharpening teeth, check each tooth radius for evidence of a square (sharp) corner. Use the round (rat tail) file to renew the radius.



## STORAGE

### *Long Term Storage (over 30 days)*

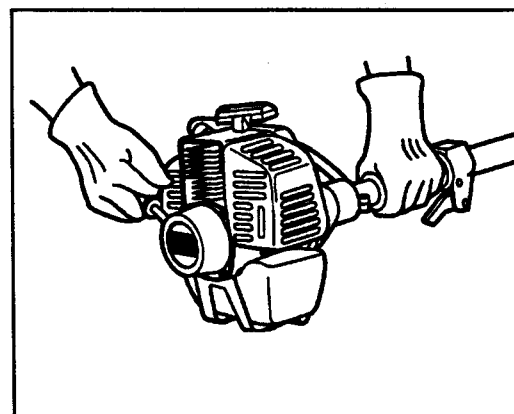
Do not store your unit for a prolonged period of time (30 days or longer) without performing protective storage maintenance which includes the following:

1. Store unit in a dry, dust free place, out of the reach of children.

### **WARNING** **DANGER**

Do not store in enclosure where fuel fumes may accumulate or reach an open flame or spark.

2. Place the ignition in the "OFF" position.
3. Remove accumulation of grease, oil, dirt and debris from exterior of unit.
4. Perform all periodic lubrication and services that are required.
5. Tighten all the screws and nuts.
6. Drain the fuel tank completely and pull the starter handle several times to remove fuel from the carburetor.
7. Remove the spark plug and pour 1/4 oz. (1/2 tablespoon) of fresh, clean, two-stroke engine oil into the cylinder through the spark plug hole.
  - A. Place a clean cloth over the spark plug hole.
  - B. Pull the recoil starter handle 2-3 times to distribute the oil inside the engine.
  - C. Observe the piston location through the spark plug hole. Pull the recoil handle slowly until the piston reaches the top of its travel and leave it there.
8. Install the spark plug (do not connect ignition cable).



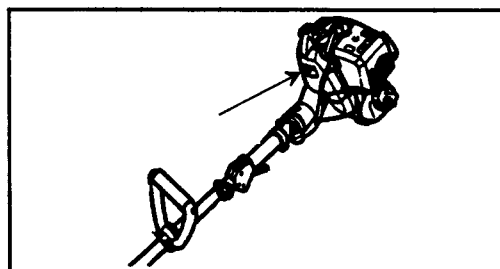
## **NOTES**

## SERVICING INFORMATION

**PARTS --**

**Genuine ECHO Parts and ECHO Re Power Parts and Assemblies for your ECHO products are available only from an Authorized ECHO Dealer. When you do need to buy parts always have the Model Number, Type number and Serial Number of the unit with you. You can find all three numbers on the engine housing. For future reference, write them in the space provided below.**

**Model No.** \_\_\_\_\_ **Type No.** \_\_\_\_\_ **SN.** \_\_\_\_\_



**SERVICE --**

**Service of this product during the warranty period must be performed by an Authorized ECHO Service Dealer. For the name and address of the Authorized ECHO Service Dealer nearest you, ask your retailer or call: 1-800-432-ECHO. When presenting your unit for Warranty service/repairs, proof of purchase is required.**

## WARRANTY CARD --

**This card is our means of registering all original owners of ECHO equipment. The card plus proof of purchase provides you the assurance that authorized warranty work will be done. It also provides a direct link between you and ECHO if we find it necessary to contact you.**

[illegible]

### ADDITIONAL OR REPLACEMENT MANUALS --

**Safety Manuals** are available, free of charge, from your ECHO dealer or by contacting Echo Incorporated, 400 Oakwood Road, Lake Zurich, IL 60047

**Operators and Parts Manuals** are available for purchase from your ECHO dealer or directly from ECHO. [See ordering instructions at the end of this manual.]

**ECHO Incorporated**  
400 Oakwood Road  
Lake Zurich, IL 60047

## Technical Publications Orders

## ORDERING INSTRUCTIONS

**To obtain a Parts Catalog or Operator's Manual send a check or money order for \$2.00 per Parts Catalog or \$1.50 per Operator' Manual made payable to ECHO, INCORPORATED. State on a sheet of paper model number and serial number of the ECHO unit you have, part number of the manual (if known), your name and address and mail to address above.**

### **Available Parts Lists**

SRM-2400/2410 S/N 161629 & UP  
SRM-2450 TYPE 1 S/N 001001 & UP  
SRM-2400/2410/2450 TYPE 1E S/N 001001 & UP

**PART NUMBER 99922202880**  
**PART NUMBER 99922202881**  
**PART NUMBER 99922202882**

**ECHO.**  
ECHO, INCORPORATED  
400 OAKWOOD ROAD  
LAKE ZURICH, IL 60047