Pro Attachment Series

Operator's Manual

MODELS, **PAS-2601**

Serial Number 001001 & Up

WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

WARNING DANGER

Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual with this unit and a separate Operator's Manual and Safety Manual (if available) with the attachment. All manuals must be read and understood for proper and safe operation. Failure to do so could result in serious injury.

X7502093600

X750000760
09/99

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 as well as your attachment operator's manual and SAFETY MANUAL (if available) before operation. You will find these manuals easy to read 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 with this unit and a separate Operator's Manual and Safety Manual (if available) with the attachment. All manuals must be read and understood for proper and safe operation.

THE OPERATOR'S MANUAL –

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

THE ATTACHMENT OPERATOR'S MANUAL –

contains specifications and information for operation and maintenance specific to the attachment.

THE SAFETY MANUAL –

(if available for attachment) explains possible hazards and what measures you should take to insure safe operation.

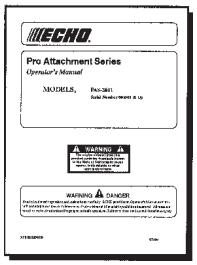

ECHO
Pro Attachment Series
Operator's Manual
MODELS,
WARNING
WARNING DANGER

TABLE OF CONTENTS

Introduction 2
- The Operator's Manual 2
Manual Safety Symbols and Important Information 3
Safety 3
- General Description 3
- International Symbols 4
- Equipment 4
- Fuel 5
- Personal Condition and Safety Equipment 5
- Safe Operation 6
- Extended Operation/Extreme Conditions 8
Description 9
- Contents 9
- Emission Control 9
Specifications 12
- ECHO Approved Optional Attachments 13
- Recommended Optional Attachments 13
Assembly 13
- Power Head/Attachment Lower Shaft Assembly 13
- Front Handle Installation 14
Pre-Operation 14
- Fuel 14
- Equipment Check 16
- Determine Operation Area 16
Operation 17
- Starting Cold Engine 17
- Starting Warm Engine 18
- Stopping Engine 18
Maintenance 19
- Skill Levels 19
- Maintenance Intervals 19
- Air Filter 20
- Fuel Filter 20
- Spark Plug 21
- Cooling System Cleaning 21
- Exhaust System 22
- Carburetor Adjustment 23
- Lubrication 24
Troubleshooting 25
Storage 26
Servicing Information 28
- Parts 28
- Service 28
- ECHO Copnsumer Product Support 28
- Warranty Card 28
- Additional or Replacement Manuals 28
- Manual Ordering Instructions 28

CopyRight© 1999 By Echo, Incorporated
All Rights Reserved.

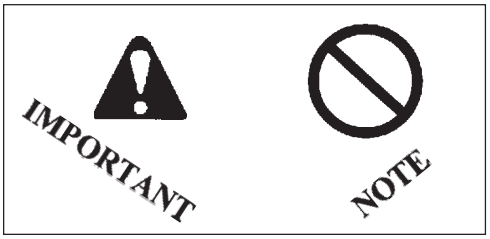
Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment.

MANUAL SAFETY SYMBOLS AND 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.



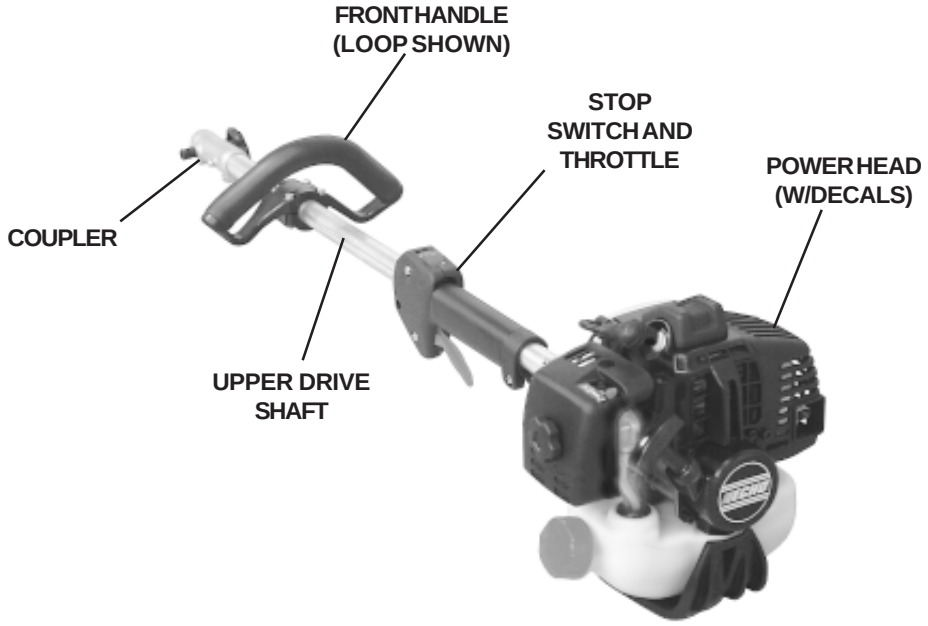
IMPORTANT
The enclosed message provides information necessary for the protection of the unit.

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

SAFETY

GENERAL DESCRIPTION

IMPORTANT
See Description and Specification sections for attachment options and full description of model variation in power head type.



INTERNATIONAL SYMBOLS

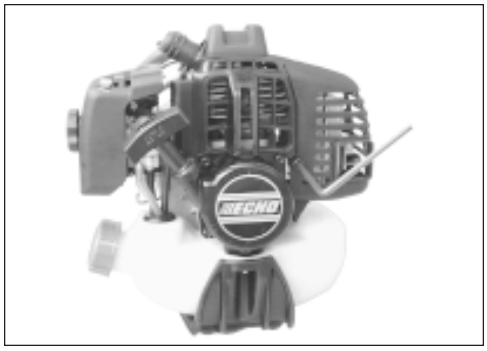
Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	Read and understand Operator's Manual.		Fuel and oil mixture
	Wear eyes, ears and head protection		Finger Severing
	Hot Surface		Wear hand protection. Use two handed.
	Safety/Alert		DO NOT smoke near fuel.
	Avoid all power lines. This unit is not insulated against electrical current.		Do not operate closer than 15 M (50 ft.) from electrical hazards.
15 M	Keep bystanders at least 15 meters (50 feet) away.		Plan retreat path from falling objects.

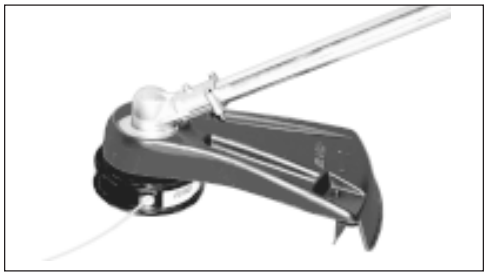
Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	DO NOT allow flames or sparks near fuel.		Wear slip resistant foot wear.
	Engine choke control.	Ignition ON I OFF O	Ignition ON/OFF
STOP	Emergency stop		Primer bulb
	Chain lubrication	H	Carburetor adjustment - High speed mixture
L	Carburetor adjustment - Low speed mixture	T	Carburetor adjustment - Idle speed

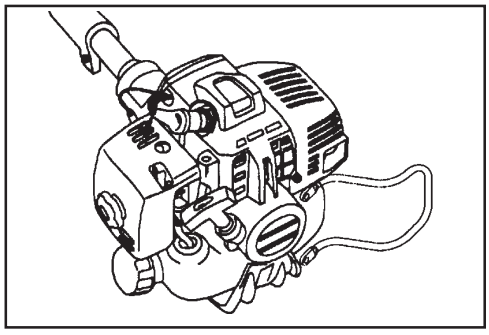
EQUIPMENT

WARNING DANGER

- Use only ECHO approved attachments for Pro Attachment Series models. Serious injury may result from the use of a non approved attachment combination. Read and comply with all safety instructions listed in this manual and attachment manual.
- ECHO, INC. will not be responsible for the failure of cutting devices, attachments or accessories which have not been tested and approved by ECHO for use with this Pro Attachment Series.







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 guards for damage and ensure that they are securely in place. Replace if guard is damaged or missing.
- Check that the attachment is firmly attached and in safe operating condition.

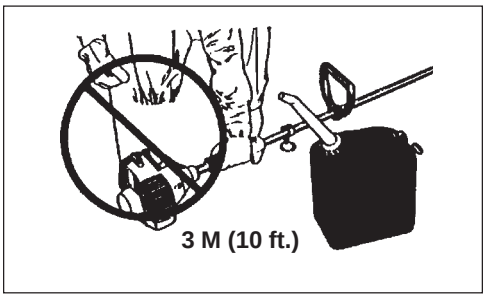
IMPORTANT
Use of the Brush Cutter on U.S. Forest land and the states of California, Oregon and Washington requires installation of optional Muffler Bracket Kit P/N 10099057730.

FUEL

WARNING DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling, otherwise 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 outdoors over bare ground.
- Securely tighten fuel cap after refueling.
- Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.



After Refueling;

- Wipe any spilled fuel from the unit.
- Move at least 3 M (10 ft.) 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 AND SAFETY EQUIPMENT

WARNING DANGER

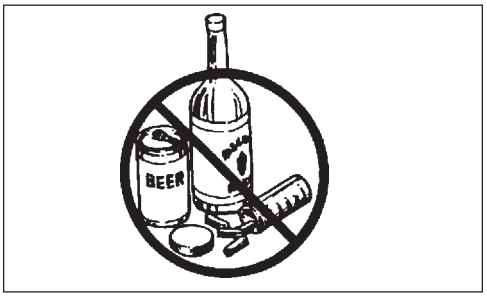
Pro Attachment Series users risk injury to themselves and others if the Pro Attachment Series unit is used improperly and or safety precautions are not followed. Proper clothing and safety gear must be worn when operating a Pro Attachment Series unit.

Physical Condition —

Your judgment and physical dexterity may not be good:

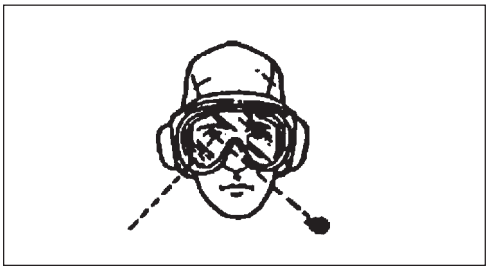
- if you are tired or sick,
- if you are taking medication,
- if you have taken alcohol or drugs.

Operate unit only if you are physically and mentally well.



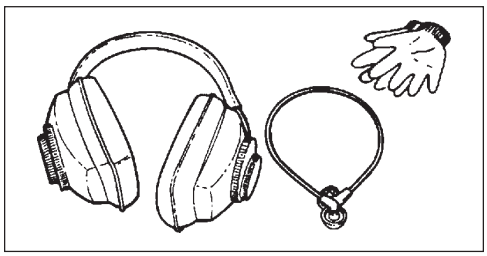
Eye Protection —

Wear eye protection that meets ANSI Z87.1 or CE requirements whenever you operate the unit.



Hand Protection —

Wear no-slip, heavy duty work gloves to improve your grip on the unit handles. Gloves also reduce the transmission of machine vibration to your hands.



Hearing Protection —

Wear hearing protection. ECHO recommends wearing hearing protection whenever unit is used.

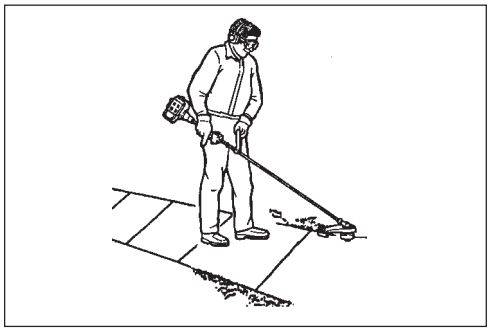
Proper Clothing —

Wear snug fitting, durable clothing;

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

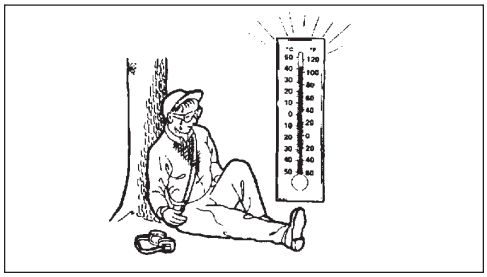
Wear sturdy work shoes with non-skid soles;

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



Hot Humid Weather —

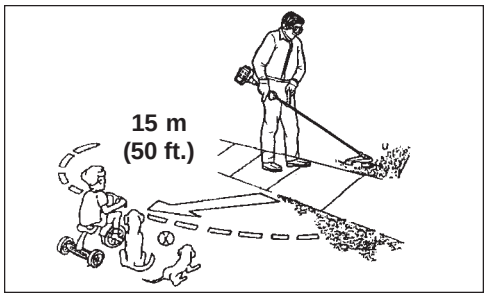
Heavy protective clothing can increase operator fatigue which may lead to heat stroke. Schedule heavy work for early morning or late afternoon hours when temperatures are cooler.



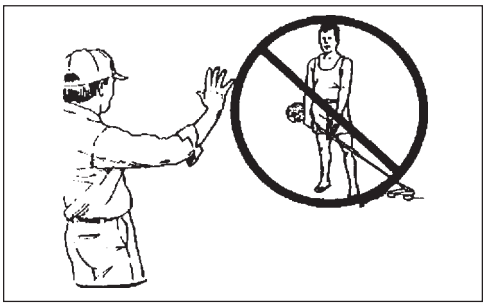
SAFE OPERATION

Determine Operation Area

- Provide all operators of this equipment with the Operator's Manuals and instructions for safe operation.
- Review the area where you will be operating. 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 specified in the attachment operator's manual or safety manual. If unsure keep people and pets away 15 m (50 ft.).



Operation

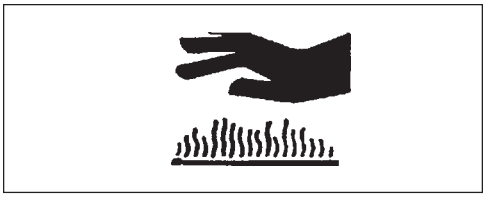


Use Proper Clothing & Equipment

- Before starting the unit, equip yourself and any other person working within the specified Safety Zone provided in your attachment manual with the required Protective Equipment and clothing.

WARNING DANGER

Do not operate this product indoors or in inadequately ventilated areas. Engine exhaust contains poisonous emissions and can cause serious injury or death.



Avoid Hot Surfaces

- During operation, the complete unit, especially the drive shaft housing and the attachment 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 encircling the handles

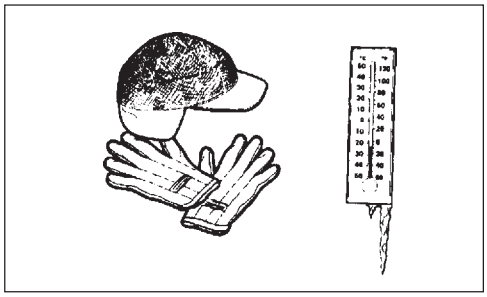
Keep A Solid Stance

- 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 --

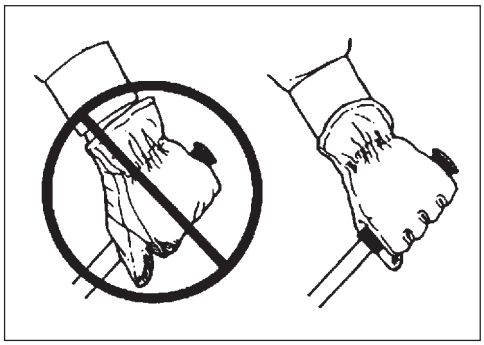
It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations followed by loss of color and numbness in the fingers. The following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



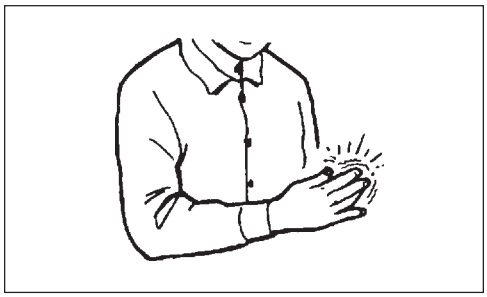
- Keep your body warm, especially the head, neck, feet, ankles, hands and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the trimmer or other 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.
- Immediately stop using all power equipment and consult 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.



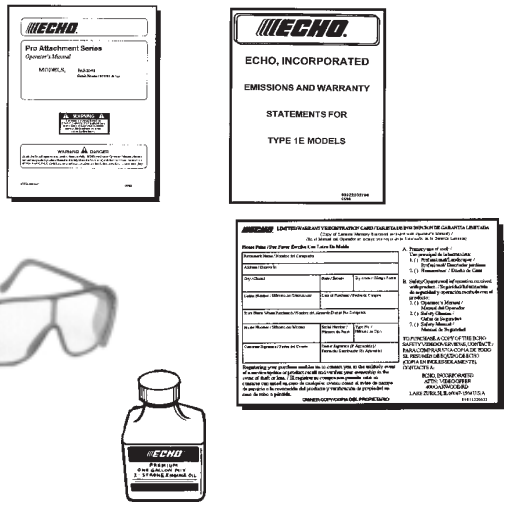
DESCRIPTION

The ECHO product you purchased has been factory pre-assembled for your convenience. Due to packaging restrictions, 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

1 - Power Head w / Upper Drive Shaft Assembly
1 - Plastic Bag (co-pack)
- 1, Operator's Manual
- 1, Warranty Registration Card
- 1, ECHO Emissions and Warranty Statement
- 1, Safety Glasses
- 1, 2-Stroke Oil Sample, 2.6 oz.
- 1, Front Handle (L.H.)
- 4, 5 mm x 35 mm screws
- 4, 5 mm nuts



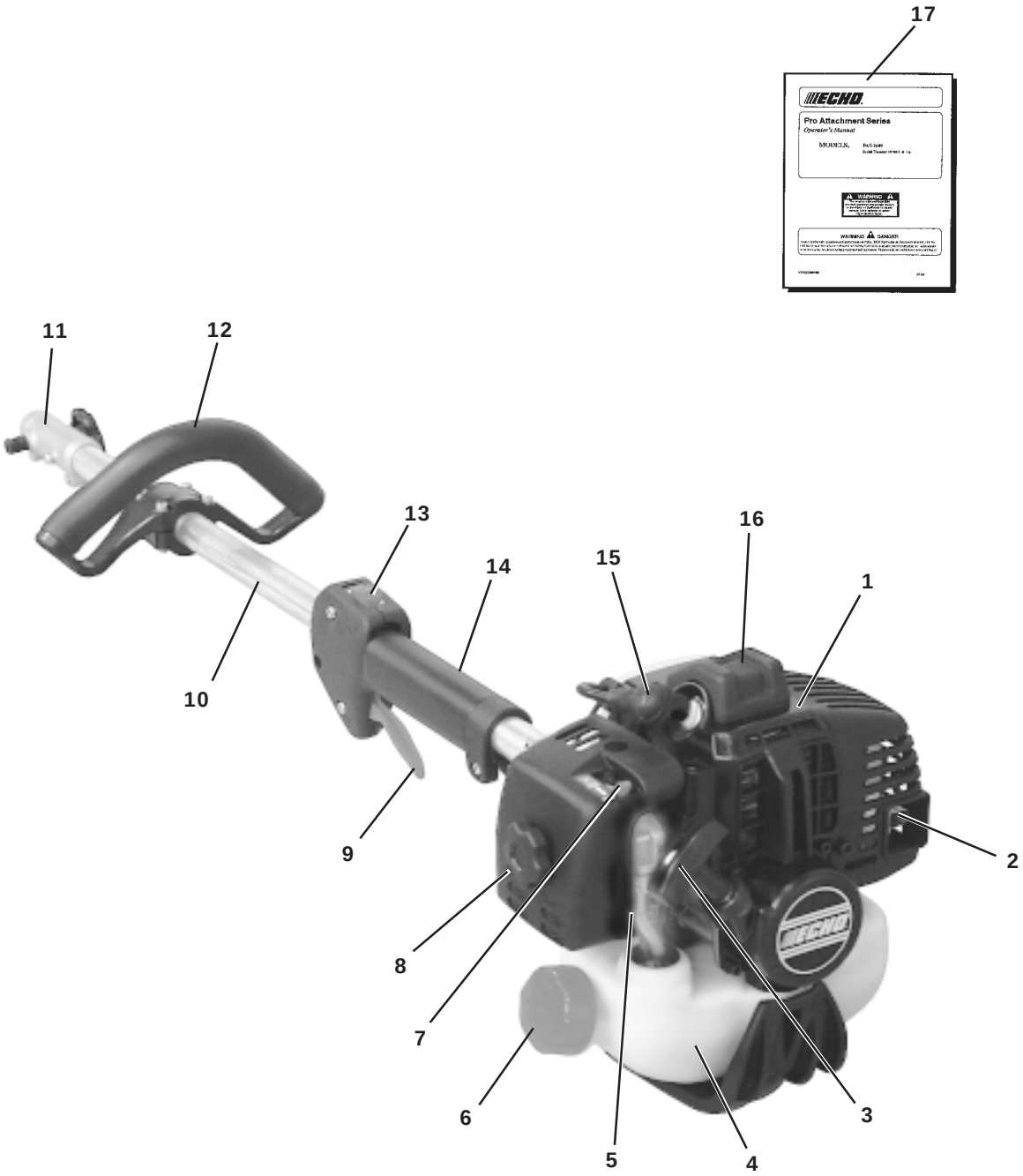
EMISSION CONTROL

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

IMPORTANT ENGINE INFORMATION
ENGINE FAMILY: VEH025UB24RA
DISPLACEMENT: 25.4cc
THIS ENGINE MEETS U.S. EPA PHI AND 1995 - 1999 CALIFORNIA EMISSION REGULATIONS FOR ULGE ENGINES. REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

KIORITZ CORP.

<u>An Emission Control Label</u> is located on the engine. (This is an EXAMPLE ONLY, information on label varies by engine FAMILY).


17
ECHO
Pro Attachment Series
Operator's Manual
MODELS,
WARNING
WARNING DANGER
11
12
13
14
15
16
1
10
9
2
8
7
6
5
4
3

1. **POWER HEAD** - Includes the Engine, Clutch, Fuel System, Ignition System and Recoil Starter.

2. **MUFFLER, SPARK ARRESTOR -** The muffler controls the exhaust noise while the spark arrestor prevents hot, glowing particles of carbon from leaving the muffler where they could possibly start a fire.

3. **RECOIL STARTER HANDLE** - Pull handle slowly until recoil starter engages, then quickly and firmly. When engine starts, return handle slowly. DO NOT let handle snap back or damage to unit will occur.

4. **FUEL TANK** - Contains fuel and fuel filter.

5. **PRIMER BULB** - Before starting and after filling the fuel tank, pump primer bulb 10 times or until a steady stream of fresh fuel without air is visible through the "clear" fuel return line.

6. **FUEL TANK CAP** - Covers and seals fuel tank opening.

7. **CHOKE** - The choke control lever is located on the top of the air cleaner case. Move lever to "COLD START" to close choke for cold starting. Move lever to the "RUN" position to open choke.

8. **AIR CLEANER** - Contains replaceable filter element.

9. **THROTTLE TRIGGER** - Spring loaded to return to idle when released. During acceleration, press trigger gradually for best operating technique.

10. **UPPER DRIVE SHAFT ASSEMBLY** - Includes the Rear (Right Hand) Handle Assembly, Front (Left Hand) Handle Assembly, Flexible Drive Cable, Drive Shaft Assembly Coupler and Power Head.

11. **DRIVE SHAFT COUPLER** - Includes Locator Pin and Clamping Knob.

12. **FRONT HANDLE** - The Front Handle must be assembled to the Upper Drive Shaft assembly and positioned for proper cutting attitude and operator comfort.

13. **STOP SWITCH** - "SLIDE SWITCH" mounted on top of the Throttle Trigger Housing. Move switch FORWARD to RUN, BACK to STOP.

14. **GRIP** - Rear (right hand) handle.

15. **SPARK PLUG** - Provides spark to ignite fuel mixture.

16. **ARM REST** - Provides arm rest during operation and protects arm from the hot engine.

17. **OPERATOR'S 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.

SPECIFICATIONS

MODEL	PAS-2601
Shaft Length	756 mm (29.8 in.)
Unit Width	1015 mm (40.0 in.)
Width	222 mm (8.75 in.)
Height	241 mm (9.50 in.)
Weight (dry) w/Cutter Head	3.9kg (8.6 lb.)
Engine Type	Air cooled, two-stroke, single cylinder gasoline engine
Bore	34.0 mm (1.34 in.)
Stroke	28.0 mm (1.10 in.)
Displacement	25.4 cc (1.55 cu. in.)
Exhaust	Spark Arrestor Muffler
Carburetor	Walbro diaphragm model WYJ w/purge pump
Ignition System	CDI (capacitor discharge ignition)
Spark Plug	NGK BPM-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	0.64 lit. (21.6 US fl. oz.)
Starter System	Automatic Rewind Starter
Clutch	Centrifugal Type
Drive Shaft	6.35 mm (1/4 in.) flexible shaft
Idle Speed	2400 - 3000 RPM
Wide Open Throttle Speed (W.O.T.)	9500 - 11000 RPM

*** The RPM range shown applies for all attachments. Refer to your attachment Operator's Manual "Specifications" section for proper RPM specifications.**

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.

ECHO APPROVED OPTIONAL ATTACHMENTS

WARNING DANGER

- Use only ECHO approved attachments for Pro Attachment Series models. Serious injury may result from the use of non approved attachment combinations. Read and comply with all safety instructions listed in this manual and attachment manual.
- ECHO, INC. will not be responsible for the failure of cutting devices, attachments or accessories which have not been tested and approved by ECHO for use with this Pro Attachment Series unit.

RECOMMENDED OPTIONAL ATTACHMENTS

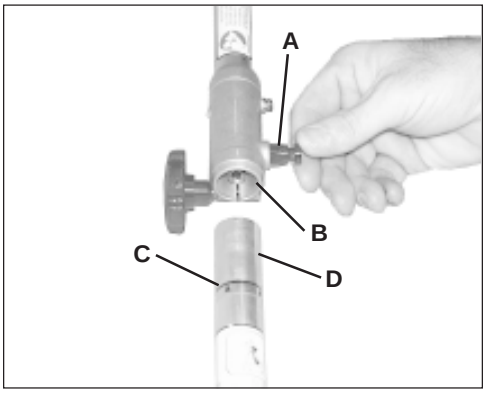
- SRM Edger Attachment Model Number 99944200470
- SRM Hedge Clipper Attachment Model Number 99944200480
- SRM Cultivator Attachment Model Number 99944200510
- SRM Power Pruner™ Attachment Model Number 99944200530
- SRM Trimmer Attachment Model Number 99944200540
- Pro Sweep™ Attachment Model Number 99944200550
- Pro Thatch™ Attachment Model Number 99944200560

ASSEMBLY

POWER HEAD SHAFT/ATTACHMENT LOWER SHAFT ASSEMBLY

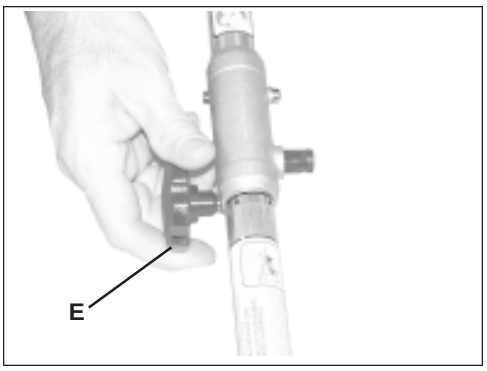
Tools Required: None

Parts Required: Power Head Shaft, Attachment Lower Shaft Assembly



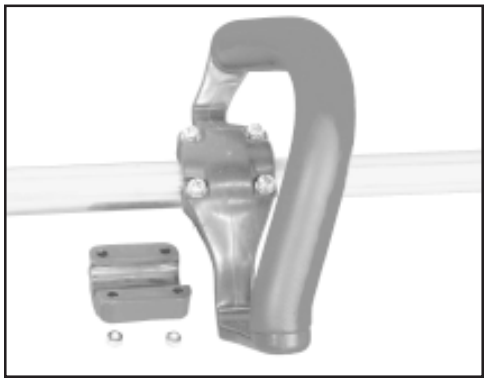
1. Set Power Head/Shaft Assembly on a level surface.
2. Pull locator pin (A) and rotate counter clockwise 1/4 turn to lock out position.
3. Carefully fit attachment lower drive shaft assembly into coupler (B) to decal assembly line (C), making sure that the inner lower drive shaft engages into the upper drive shaft mount.

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



4. Rotate locator pin (A) 1/4 turn clockwise to engage lower shaft hole (D). Insure locator pin is fully engaged by gently twisting lower drive shaft. Locator pin should snap flush in coupler. Full engagement will prevent further shaft rotation.
5. Secure lower shaft assembly to coupler by tightening clamping knob (E).

FRONT HANDLE INSTALLATION



Tools Required: Screwdriver.

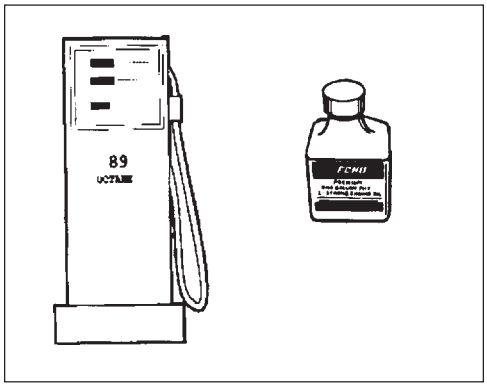
Parts Required: Front Handle, Handle Support, Four (4) 5mm x 35mm screws with captivated washers, four (4) 5mm nuts.

1. Position front handle on drive shaft, DO NOT tighten screws yet.
2. Stand in a comfortable operating position with attachment assembled and move front handle for comfortable operation. Tighten handle screws.

PRE - OPERATION

FUEL

Fuel Requirements --



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

Two Stroke Oil - A two-stroke engine oil meeting ISO-L-EGD Standard (ISO/CD 13738), must be used. Echo brand Premium 50:1 oil meets this 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 --

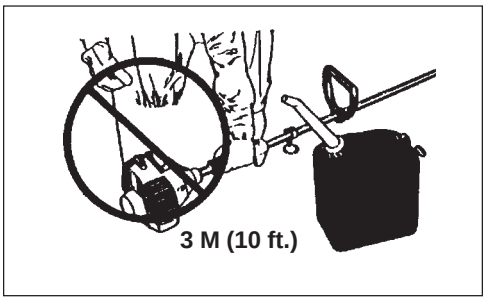
WARNING ⚠ DANGER

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 tanks out doors over bare ground.
- Securely tighten fuel cap after refueling.
- Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.

After Refueling –

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

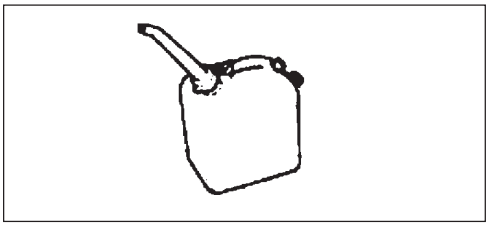


After use –

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

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.



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.

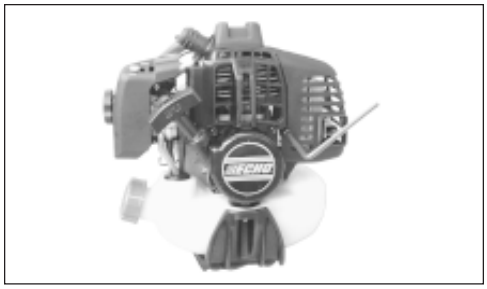
IMPORTANT
Stored two-stroke fuel may separate. ALWAYS shake fuel container thoroughly before each use.

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				

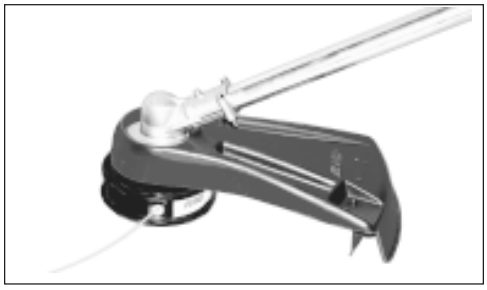
EQUIPMENT CHECK

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

- Check 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.



- Check that the attachment is firmly attached and in safe operating condition.

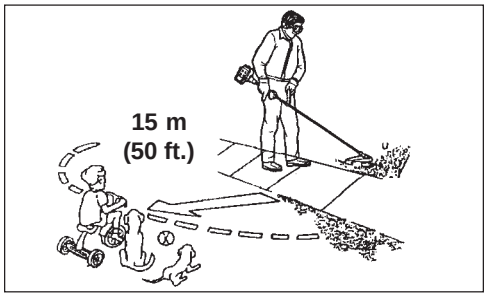
- Check that front handle is adjusted for safe, comfortable operation. See Assembly for proper adjustment.

DETERMINE OPERATION AREA

WARNING ⚠ DANGER

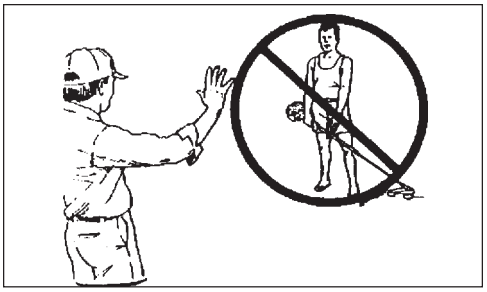
Inspect starting area for hazards such as rocks, glass, debris etc. which could be thrown by the cutting attachment when starting. Keep helpers and bystanders at least 15m (50 ft) from starting area, otherwise serious personal injury may result.

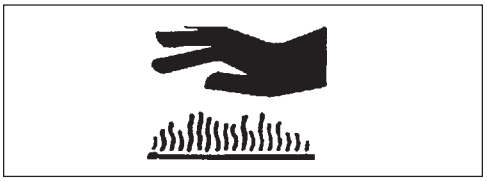
- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than specified in the attachment Operator's Manual or Safety Manual. If unsure keep people and pets away 15 m (50 ft.).



OPERATION

- Provide all operators of this equipment with the Operator's Manuals and instructions for safe operation.
- Before starting the unit, equip yourself and any other person working within the specified Safety Zone provided in your attachment manual with the required Protective Equipment and clothing.
- During operation, the complete unit, especially the drive shaft housing and the attachment bearing housing may become very hot, too hot to touch. Avoid contact during and immediately after operation.

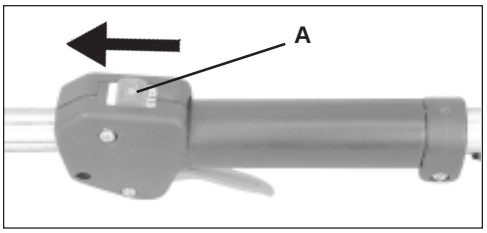




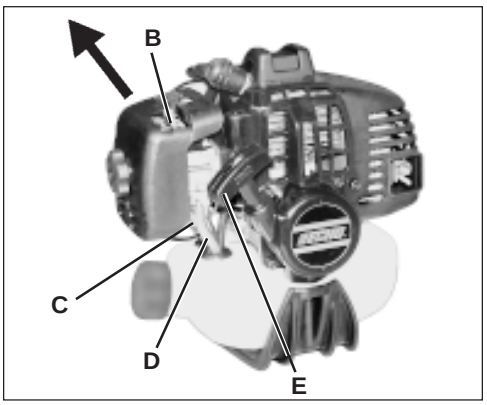
STARTING COLD ENGINE

WARNING ⚠ DANGER

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

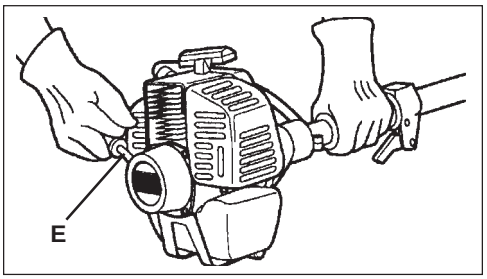


1. *Stop Switch* - Start/Run.
   Move stop switch button/lever (A) away from the STOP position.
2. *Close Choke* - Cold Start.
   Move choke lever (B) to Cold Start Position.
3. *Primer* - Pump Bulb.
   Pump primer bulb (C) 10 times. Fuel will be visible in the "Clear" fuel return line (D).
4. *Start* - Pull Rope.
   Lay the unit on a flat clear area and pull the recoil starter handle (E) until engine fires.
5. *Open Choke* - Run.
   Move the choke lever to the OPEN-RUN position. Restart engine if necessary and allow to warn up running at idle for several minutes.



NOTE
If engine does not start with choke in "RUN" position after 5 pulls, repeat instructions.

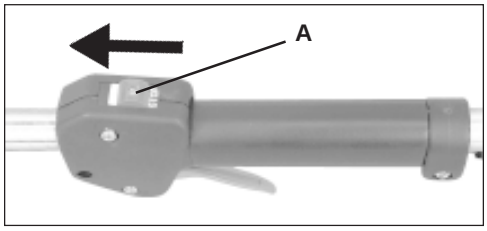
6. After engine warm up, gradually depress throttle trigger to increase engine RPM to operating speed.



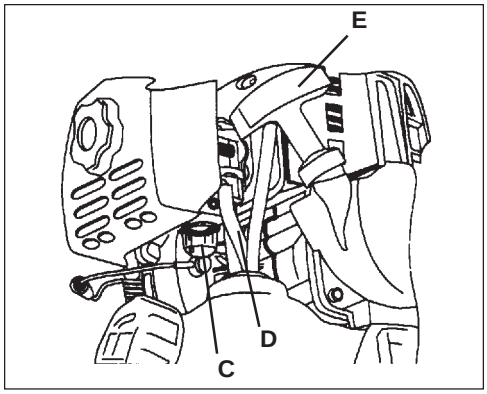
STARTING WARM ENGINE

WARNING DANGER

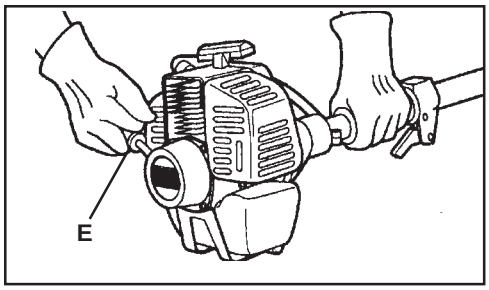
Attachment should not rotate at idle. If attachment rotates, readjust carburetor according to Carburetor Adjustment instructions in this manual or see your ECHO dealer, otherwise serious personal injury may result.



1. *Stop Switch* - Start/Run.
   Move stop switch button/lever (A) away from the STOP position.



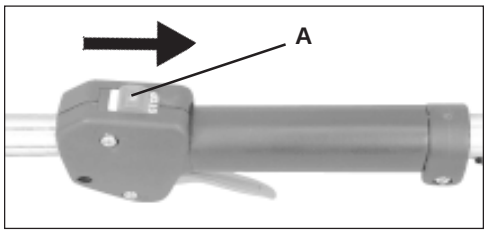
2. *Primer* - Pump Bulb.
   Pump primer bulb (C) until fuel is visible in the "Clear" fuel return line (D).



3. *Starting*.
   Lay unit on a flat, clear area and pull recoil starter handle/rope (E) until engine fires.

NOTE
If engine does not start after 5 pulls, use Cold Start Procedure.

STOPPING ENGINE



1. *Release Throttle*. Allow engine to idle for a minute.

2. *Stop Switch* - Stop. Move stop switch button/lever (A) to STOP position.

WARNING DANGER

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

MAINTENANCE

Your ECHO unit is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your unit 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-YOURSELF or have the ECHO Dealer do it, each maintenance task has been graded. If the task is not listed, see your ECHO Dealer for repairs.

SKILL LEVELS

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

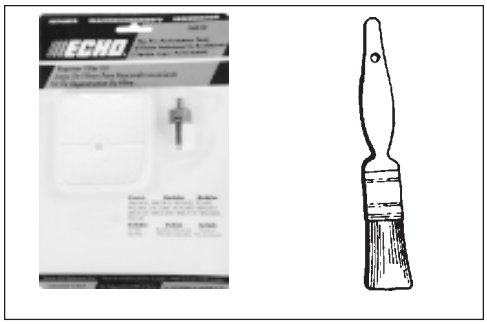
Component/System	Maintenance Procedure	Before Use	Every Refuel	Daily or Every 4 Hours	3 Months or 100 Hours	6 Months or 300 Hours	Yearly or 600 Hours
Air Filter	Clean / Replace	I		I	R		
Fuel Strainer	Clean/Replace				I		R
Fuel Line	Inspect	I			I		R
Carburetor	Inspect/Rebuild/ Replace					I	R (1)
Choke System	Inspect/Clean/ Replace		I				
Cooling System	Inspect/Clean	I		I			
Muffler Spark Arrestor	Inspect/Clean				I		
Drive Shaft	Grease			I(2)			
Recoil Starter Rope	Inspect/Clean	I					
Fuel Leaks	Inspect/Replace	I	I				
Spark Plug	Clean / Replace				I	R	
Ignition System	Clean/Replace	No Maintenace required for coil and flywheel					
Screws/Nuts/Bolts	Inspect/Tighten/ Replace	I					

I = Inspect / R = 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.
(2) Grease flexible drive cables every 25 hours and/or on a weekly schedule.

AIR FILTER

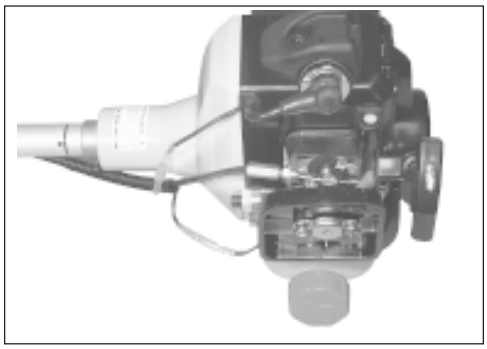
Level 1.
Tools required: 1" or 2" medium bristle paint brush

Parts required: 90030 REPOWER™ Air and 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.



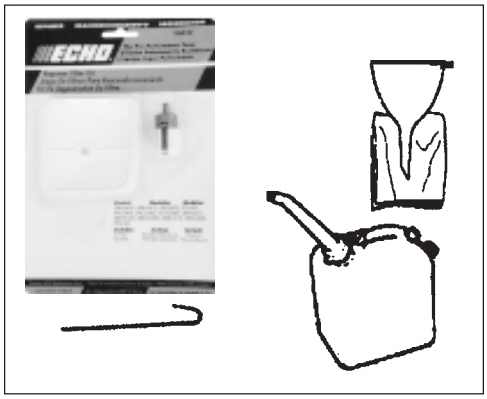
3. If element can be cleaned and reused, be certain it:
   •still fits the cavity in the air cleaner cover.
   •is installed with the original side out.

NOTE
Carburetor adjustment may be needed after cleaning/replacement.

FUEL FILTER

Level 1.
Tools required: 8"-10" (203-254 mm) length of wire with one end bent into a hook, Clean rag, funnel, an approved fuel container,

Parts required: 90030 REPOWER™ Air and Fuel Filter Kit

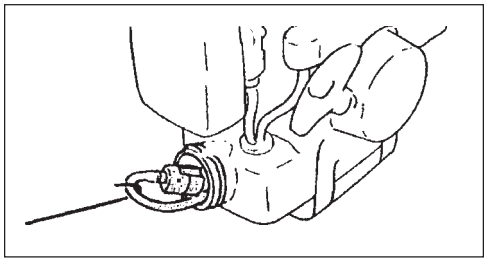


WARNING DANGER
Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling, otherwise serious personal injury may result.

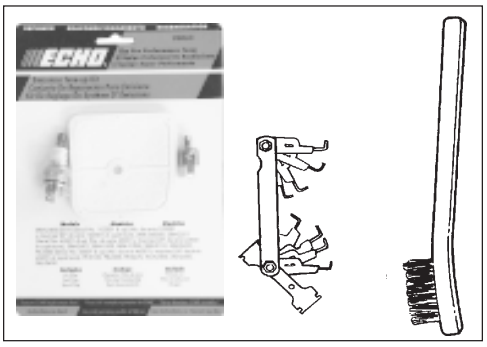
1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.

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

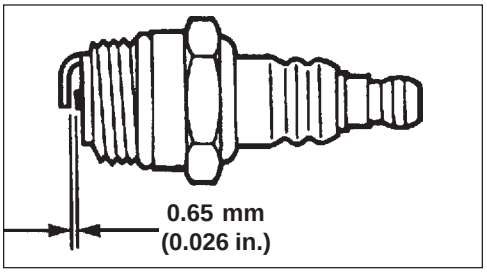


Level 2.

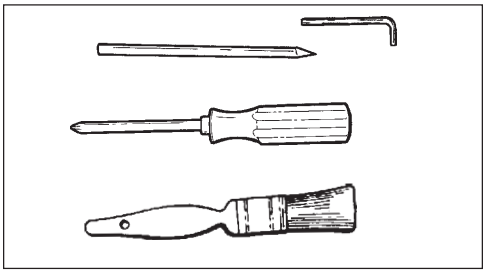
Tools required: Feeler gauge (preferably a wire gauge), Soft metal brush.

Parts Required: 90065 REPOWER™ TUNE-UP KIT

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.
4. Tighten spark plug to 145-155 kg/cm (125-135 in. lb.).



COOLING SYSTEM CLEANING

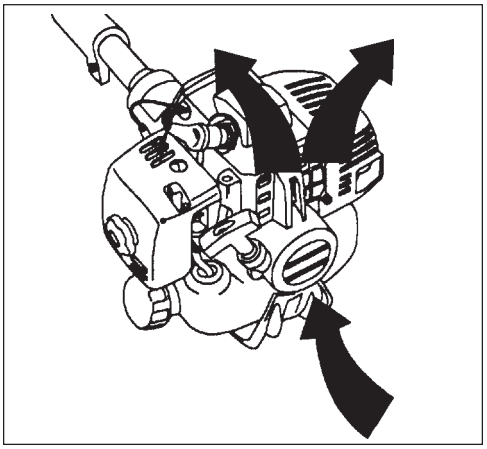


Level 3.

Tools required: 1" or 2" medium bristle paint brush, Cross-Head Screwdriver, 4 mm Hex Wrench, Pointed Wood Stick.

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.
- 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.

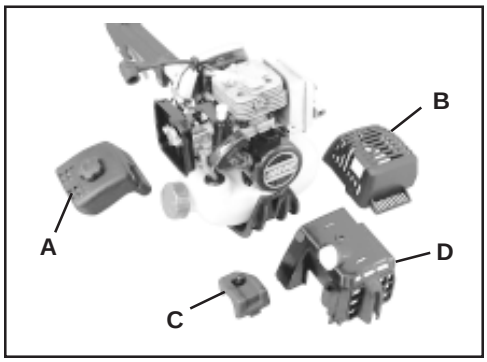
1. Close choke and remove air filter cover (A).

2. Remove spark plug lead.

3. Remove two (2) muffler cover screws and muffler cover (B).

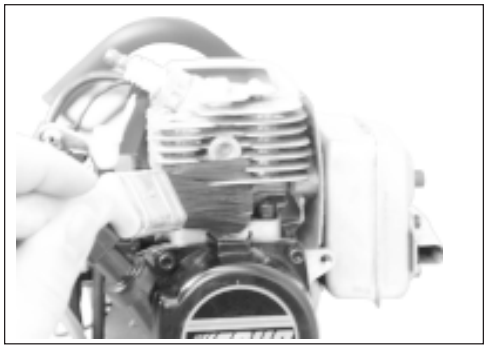
4. Remove screw and arm rest (C).

5. Remove cylinder cover (D).

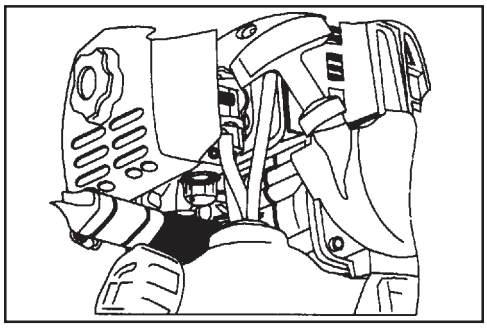


IMPORTANT
DO NOT use a metal scraper to remove dirt from the cylinder fins.

6. Use brush or wooden stick to remove dirt from the cylinder fins.



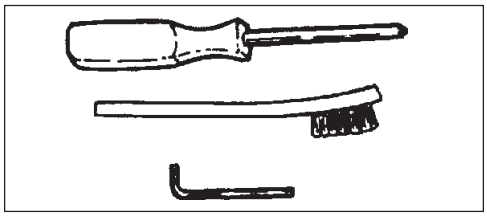
7. Remove grass and leaves from the grid between the recoil starter and fuel tank.



EXHAUST SYSTEM

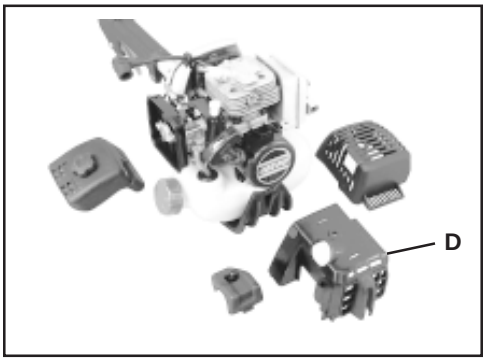
Spark Arrestor Screen

Level 2.
Tools required: Cross-HeadScrewdriver, Soft metal brush, 4 mm Hex Wrench.
Parts Required: Screen P/N 14586240630



1. Remove cylinder cover (D). See “Cleaning Cooling System” pages 21 & 22 for step by step instructions.

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

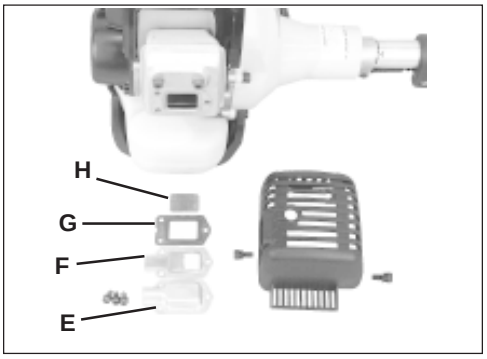


3. Remove spark arrestor screen cover (E), screen holder (F), gasket (G) and screen (H) from muffler body.

4. Clean carbon deposits from screen and muffler components.

5. Replace screen if it is cracked, plugged or has holes burned through.

6. Assemble components in reverse order.

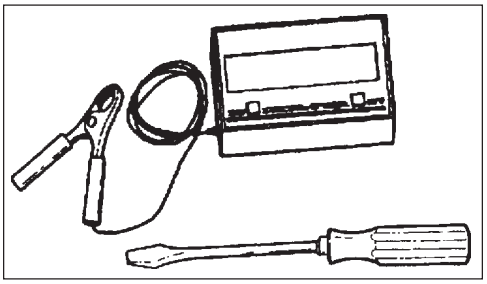


CARBURETOR ADJUSTMENT

Level 2.

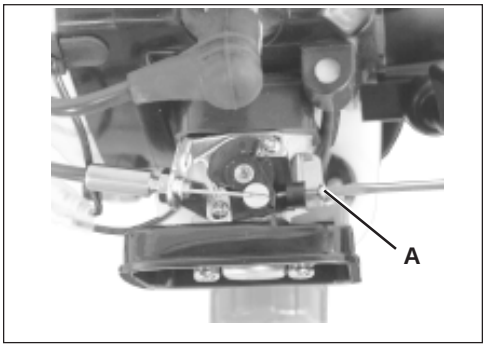
Tools required: Slotted Screwdriver, Tachometer (ECHO P/N 99051130017).

Parts required: None.



NOTE
Every unit is run at the factory and the carburetor is set in compliance with California Emission Regulations. This carburetor does not have acceleration and high speed adjustment needles.

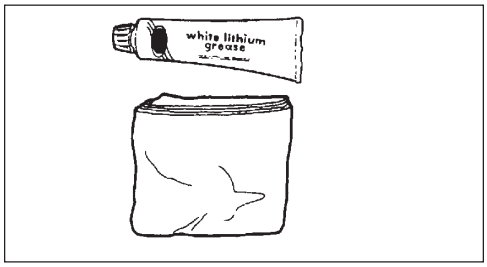
1. Check idle speed and reset if necessary. If a tachometer is available, idle speed screw (A) should be set to the specifications found on page 12 "Specifications" of this manual. Turn idle screw (A) clockwise to increase idle speed; counter clockwise to decrease idle speed.



WARNING DANGER

When carburetor adjustment is completed, the attachment should not rotate at idle, otherwise serious personal injury may result.

LUBRICATION



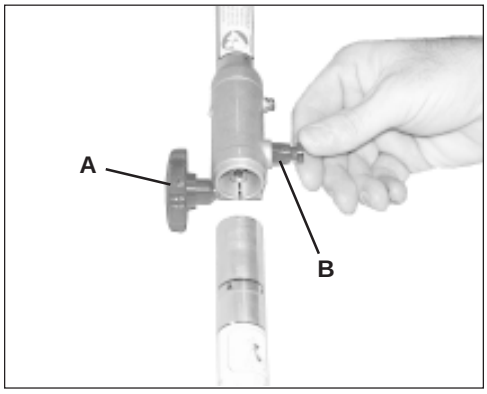
Level 1.

Tools required: Clean Rag

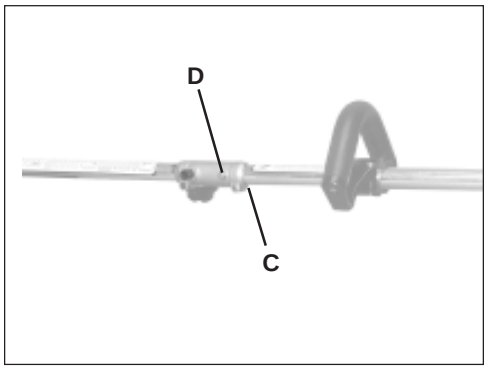
Parts Required: Lithium Base Grease.

Drive Shaft

IMPORTANT
The drive shaft must be lubricated with high temperature automotive grease every 25 hours of operation, otherwise drive shaft assembly overheating and failure can result.



1. Loosen clamping knob (A).
2. Pull locator pin (B) and rotate 1/4 turn counter clockwise to lockout position.
3. Remove attachment.
4. Remove coupler from upper drive shaft assembly by loosening clamping screw (C) and removing set screw (D).
5. Remove upper flex cable, wipe clean and apply a thin coating of 1/2 oz. (15ml) of high temperature automotive grease.
6. Install cable. Make sure that the flex cable engages into the clutch mount. Install coupler engaging coupler adapter onto flex cable end.
7. Install set screw (D) and tighten clamping screw (C).



TROUBLESHOOTING

Problem			Cause	Remedy
Engine -- starts hard Engine -- does not start				
Engine Cranks	Fuel at carburetor	No fuel at carburetor	Fuel strainer clogged Fuel line clogged Carburetor	Clean Clean See your ECHO dealer
	Fuel at cylinder	No fuel at cylinder	Carburetor	See your ECHO dealer
		Muffler wet with fuel	Fuel Mixture is too rich	Open choke Clean/replace air filter Adjust carburetor See your ECHO dealer
	Spark at end of plug wire	No spark at end of plug wire	Stop switch off Electrical problem Interlock switch	Turn switch on See your ECHO dealer See your ECHO dealer
	Spark at plug	No spark at plug	Spark gap incorrect Covered with carbon Fouled with fuel Spark plug defective	Adjust 0.65mm (0.026in.) Clean or replace Clean or replace Replace plug
Engine does not crank			Internal engine problem	See your ECHO dealer
Engine runs	Dies or accelerates poorly		Air filter dirty Fuel filter dirty Fuel vent plugged Spark plug Carburetor Cooling system plugged Spark arrestor screen plugged	Clean or replace Replace Replace Clean and adjust/replace Adjust Clean Clean

WARNING DANGER

Fuel vapors are **extremely** flammable and may cause fire and/or explosion. **Never** test for ignition spark near an open spark plug opening, otherwise serious personal injury may result.

STORAGE

Long Term Storage (over 30 days)

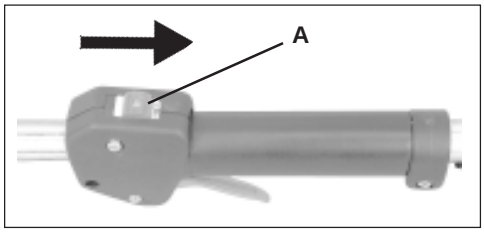
Do not store your unit for a prolonged period of time (30 days or longer) without performing protective storage maintenance which includes the following:

1. Store unit in a dry, dust free place, out of the reach of children with drive shaft housing in an upright or horizontal position to prevent grease leakage.

WARNING ⚠ DANGER

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

2. Place the stop switch (A) 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.

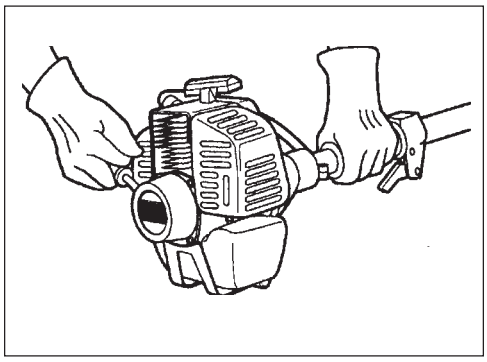
6. **Drain** the fuel tank **completely** and pull the recoil starter handle several times to remove fuel from the carburetor.

7. Remove the spark plug and pour 7 cc (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 starter 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 REPOWER™ 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 (3246)**.** When presenting your unit for Warranty service/repairs, proof of purchase is required.

ECHO CONSUMER PRODUCT SUPPORT

If you require assistance or have questions concerning the application, operation or maintenance of this product you may call the ECHO Consumer Product Support Department at 1-800-673-1558 from 8:00 am to 5:00 pm (Central Standard Time) Monday through Friday. Before calling, please know the model and serial number of your unit to help your Consumer Product Support Representative.

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.

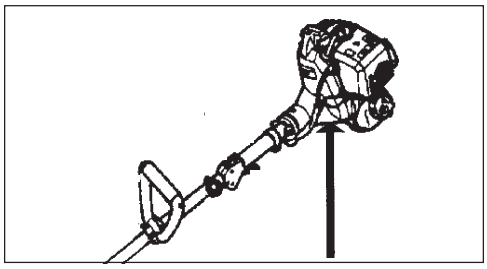
ADDITIONAL OR REPLACEMENT MANUALS

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

Operator's and Parts Manuals are available for purchase from your ECHO dealer or directly from ECHO. [See ordering instructions below.]

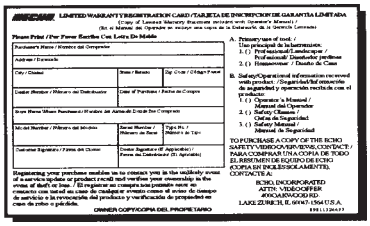
ORDERING INSTRUCTIONS

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's Manual made payable to ECHO, INCORPORATED. State on a sheet of paper the 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.



DEALER?
Call
1-800-432-ECHO

CONSUMER PRODUCT SUPPORT
1-800-673-1558
8 - 5 Mon - Fri C.S.T.



LIMITED WARRANTY REGISTRATION CARD / TARJETA DE INSCRIPCION DE GARANTIA LIMITADA

(Copy of Limited Warranty Registration accompanies each Operator's Manual.) / (En el Manual del Operador se incluye una copia de la Garantía de la Garantía Limitada)

Please Print / Por Favor Escribe Con Letra De Molde

Purchaser's Name / Nombre del Comprador		
Address / Dirección		
City / Ciudad	State / Estado	Zip Code / Código Postal
Dealer Number / Número del Distribuidor	Date of Purchase / Fecha de Compra	
Type Name Where Purchased / Nombre del Autoridad Donde Fue Comprado		
Model Number / Número del Modelo	Serial Number / Número de Serie	Type No. / Número de Tipo
Customer Signature / Firma del Cliente	Dealer Signature (If Applicable) / Firma del Distribuidor (Si Aplicable)	

Registering your purchase enables us to contact you in the unlikely event of a service update or product recall and verifies your ownership in the event of theft or loss. / El registrar su compra nos permite entrar en contacto con usted en caso de cualquier avisado como el avisado de tiempo de servicio o la revocación del producto y verificación de propiedad en caso de robo o pérdida.

OWNER COPY/COPIA DEL PROPIETARIO

A. Primary use of tool. / Uso principal de la herramienta.
1. ( ) Professional/Landscaper / Profesional/ Diseñador jardines
2. ( ) Homeowner / Dueño de Casa

B. Safety/Operational information received with product. / Seguridad/Información de seguridad y operación recibida con el producto.
1. ( ) Operator's Manual / Manual del Operador
2. ( ) Safety Classes / Clases de Seguridad
3. ( ) Safety Manual / Manual de Seguridad

TO PURCHASE A COPY OF THE ECHO SAFETY VIDEO OR SPEAK CONTACT: / PARA COMPRAR UNA COPIA DE TODO EL RESUMEN DE EQUIPO DE ECHO (COPIA EN INGLES SOLAMENTE). CONTACTE A:

ECHO, INCORPORATED
ATTN: VIDEO OFFER
400 OAKWOOD RD.
LAKE ZURICH, IL 60047-1564 U.S.A.

ECHO, Incorporated
400 Oakwood Road
Lake Zurich, IL 60047
Technical Publications Orders

Available Parts Lists

PAS-2601 TYPE 1E S/N 001001 & UP PARTNUMBER 99922203152

ECHO, INCORPORATED
400 OAKWOOD ROAD
LAKE ZURICH, IL 60047