



Cultivator Pro Attachment™ Series

99944200513

Operator's Manual

MODELS USED ON:

- SRM-2100SB/2400SB**
- SRM-210SB/211SB**
- SRM-251SB**
- SRM-225SB**
- SRM-260SB/261SB**
- PAS 2100/2400**
- PAS 210/211**
- PAS 230/231**
- PAS 260/261**
- PAS-2601**
- PAS-265**



WARNING



Read rules for safe operation and instructions carefully. ECHO provides an Operator's Manual and a Safety Manual, with your original Split Boom Trimmer or Pro Attachment Series™. Those manuals and this manual 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 included with your attachment. You will find this manual easy to use and full of helpful operations tips and SAFETY messages.

THE OPERATOR'S MANUAL

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

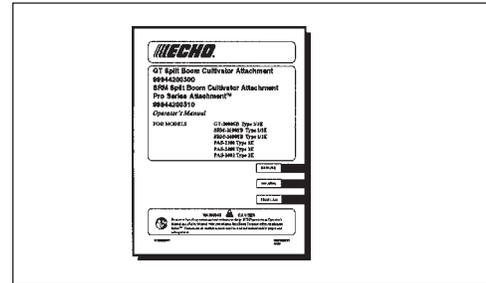


TABLE OF CONTENTS

Introduction	2	Maintenance	11
- The Operator's Manual	2	- Skill Levels	11
Safety	3	- Maintenance Intervals	11
- Manual Safety Symbols & Important Information	3	- Lubrication	12
- International Symbols	3	Storage	13
- Personal Condition and Safety Equipment	3	Specifications	13
- Equipment	6	Servicing Information	16
Description	6	- Parts/Serial Number	16
Contents	7	- Service	16
Assembly	7	- ECHO Consumer Product Support	16
- Power Head Shaft/Lower Shaft Assembly	7	- Warranty Registration	16
Operation	8	- Additional or Replacement Manuals	16
- Resetting Tines for Deep Cultivation	10		

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.

SAFETY

MANUAL SAFETY SYMBOLS AND IMPORTANT INFORMATION

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

DANGER

The safety alert symbol accompanied by the word “DANGER” calls attention to an act or condition which **WILL** lead to serious personal injury or death if not avoided.

WARNING

The safety alert symbol accompanied by the word “WARNING” calls attention to an act or condition which **CAN** lead to serious personal injury or death if not avoided.

CAUTION

The safety alert symbol accompanied by the word “CAUTION” calls attention to an act or condition which may lead to minor or moderate personal injury if not avoided.



CIRCLE AND SLASH SYMBOL

This symbol means the specific action shown is prohibited. Ignoring these prohibitions can result in serious or fatal injury.

NOTE

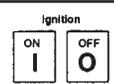
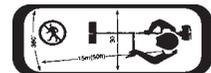
This enclosed message provides tips for use, care and maintenance of the unit.

IMPORTANT

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

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		Hot Surface
	Emergency stop		DO NOT smoke near fuel.
	Wear hand protection. Use two handed.		DO NOT allow flames or sparks near fuel.
	Wear slip resistant foot wear.		Safety/Alert

Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	Keep feet away from rotating attachment		Thrown objects
	Engine choke control.		Primer bulb
L	Carburetor adjustment - Low speed mixture		Ignition ON/OFF
T	Carburetor adjustment - Idle speed	H	Carburetor adjustment - High speed mixture
		Keep bystanders and helpers away 15 m (50 ft.).	

PERSONAL CONDITION AND SAFETY EQUIPMENT

WARNING

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

Physical Condition

Your judgment and physical dexterity may not be good:

- if you are 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 handles. Gloves also reduce the transmission of machine vibration to your hands.

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.
- Wear hair covering to contain long hair.
- **DO NOT WEAR SHORTS,**
- **DO NOT WEAR TIES, SCARFS, JEWELRY.**

Wear sturdy work shoes with non-skid soles;

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

Keep long hair away from engine and air intake. Retain hair with cap or net.

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.

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 unit 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.

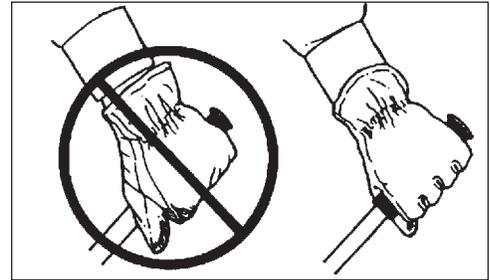


Repetitive Stress Injuries --

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 in 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.



DANGER

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

Read the Manuals

- Provide all users of this equipment with the Operator's Manual and Safety Manual for instructions on Safe Operation.

Clear the Work Area

- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 15 m (50 ft.) while the unit is in use.

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.



Avoid Hot Surfaces

- Keep exhaust area clear of flammable debris. Avoid contact during and immediately after operation.



EQUIPMENT



WARNING

Use only ECHO approved attachments. 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 safety manual. ECHO, INC. will not be responsible for the failure of cutting devices or accessories which have not been tested and approved by ECHO for use with this unit.

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 shield for damage and that it is **securely** in place. Replace if shield is damaged or missing.
- Check that the cutting tines are firmly attached and in safe operating condition.
- The cultivator gear housing is designed for ECHO recommended tines. Do not modify the gear housing for any other purpose or replace tines with other type or size.

Parts

- Do not use cultivator attachment if any part is missing or damaged.
- Have repairs done only by an authorized ECHO Service dealer.
- Do not use any attachment, accessory, or replacement part unless it is recommended in this Operator's Manual.



WARNING

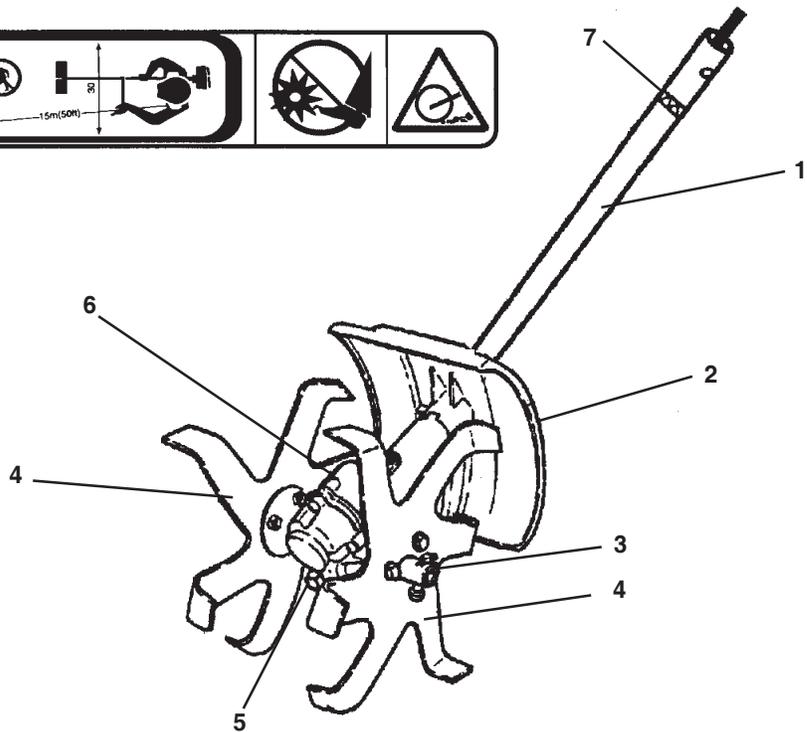
Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings.

- **ALWAYS** stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.
- **DO NOT** start or operate unit unless all guards and protective covers are properly assembled to unit.
- **NEVER** reach into any opening while the engine is running. Moving parts may not be visible through openings.

DESCRIPTION

Locate this safety decal on your unit. Make sure the decal is legible and that you understand and follow the instructions. If the decal cannot be read, a new one can be ordered from your ECHO Dealer. See PARTS ORDERING instructions for specific information.

P/N 89016025560



1. **DRIVE SHAFT ASSEMBLY** - Contains a specially designed liner and the flexible drive shaft.
2. **SHIELD** - Attached to deflect debris away from operator and reduce accidental contact with tines.
3. **HUB** - Separately attached to axle ends by clevis pin and spring pin. Tines bolt to hubs.
4. **TINES** - Identical on right and left side from operator's position. See page 12 for optional settings.
5. **GREASE ACCESS BOLT** - Apply grease to gear housing every 25 hours of use.
6. **GEAR HOUSING** - Houses gears and ball bearings for driving tines.
7. **SERIAL NUMBER LABEL** - Also serves as insertion line when drive shaft is properly engaged.

CONTENTS

The ECHO product you purchased has been factory pre-assembled for your convenience. 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.

- 1 - PAS Cultivator Attachment
- Operator's Manual
- Warranty Registration Card
- Storage Hook Assembly



ASSEMBLY

POWER HEAD SHAFT/LOWER SHAFT ASSEMBLY

Tools Required: None

Parts Required: PAS or SRM-SB Power Head w/Shaft & Coupling.

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

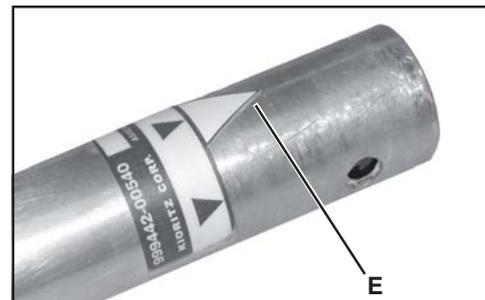
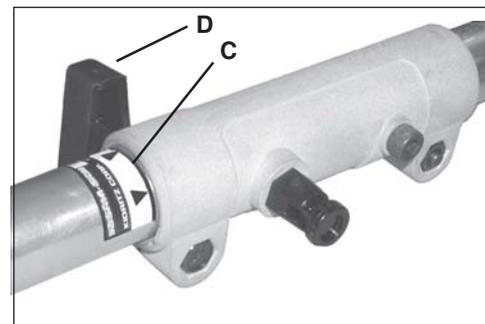
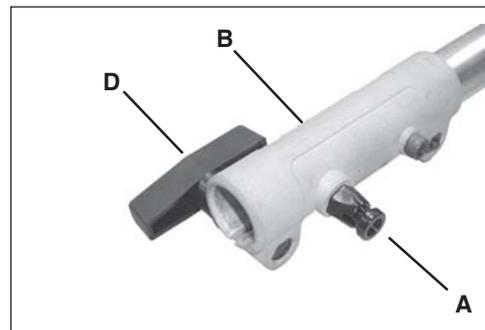
NOTE

Earlier model Power Heads may have shorter couplings. Short couplings fit flush to decal point (E). New couplings are 4-3/4 in. long, and fit flush to line (C).

NOTE

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

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



OPERATION



WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.

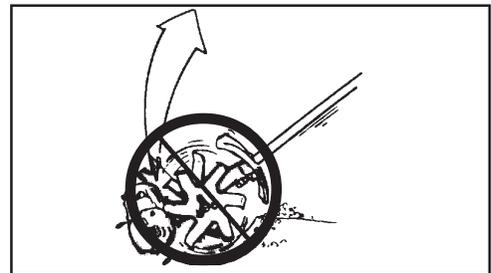
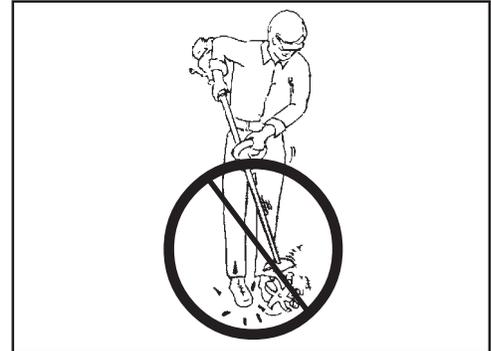
NOTE

Refer to your Pro Attachment Series or Split Boom Operator's Manuals for correct engine fueling, starting and stopping instructions.



WARNING

- When engine starts tines may rotate. Warn fellow workers and keep children and pets from coming nearer than 4.5 m (15 ft.).
- Always operate cultivator with both hands.
- Always stop engine when transporting unit to or between work areas.
- Do not perform maintenance procedures, unclog or clean cultivator tines while engine is running.
- Do not operate the cultivator above ground level or near feet.
- Do not allow the tines to contact large obstructions which may cause kickback and loss of control.
- Failure to follow these warnings may result in serious injury.

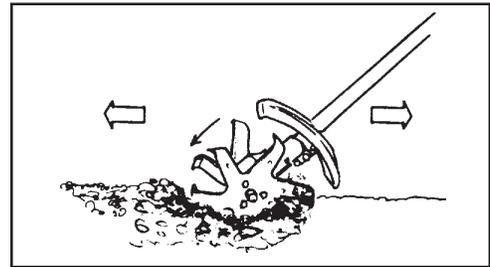


Operating Techniques

1. The tilling width of the cultivator is approximately 165 mm (6.5 in.). Place cultivator in area to be tilled, hold unit firmly with left hand on front grip and right hand on rear grip and gradually engage throttle trigger. Guide the cultivator allowing the tines to pull forward. The soil hardness will control tilling speed.



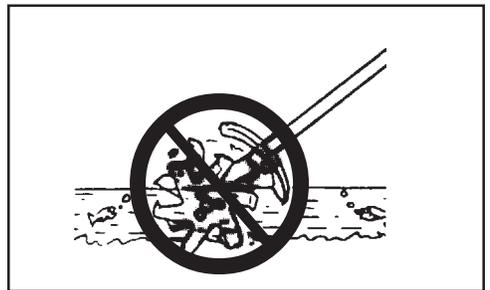
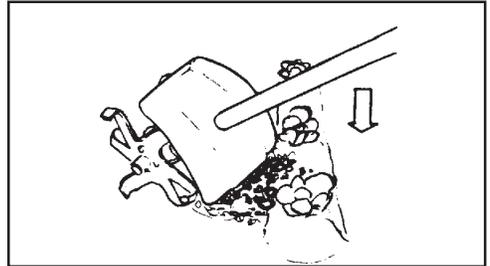
- The cultivator attachment is capable of tilling in the forward or reverse direction. For deep soil tilling, till forward then lightly pull unit rearward allowing the tines to make a deeper cut into the soil. Deep soil cultivating can also be enhanced by repositioning the tines. (Refer to Tine Setting).



- To raise or aerate the soil, tilt engine closer to the ground which will raise cultivator tines higher relative to the soil surface.

IMPORTANT

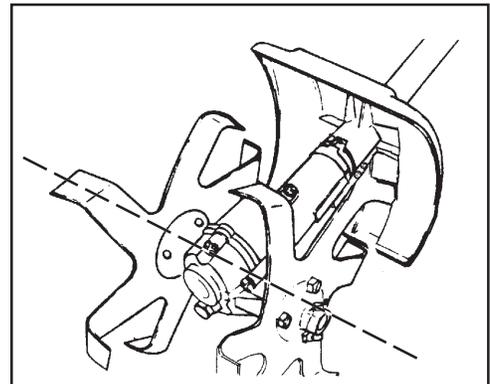
Do not operate cultivator underwater. The gear housing is not sealed and water will wash away lubrication, damaging gears, bearings, and seals.



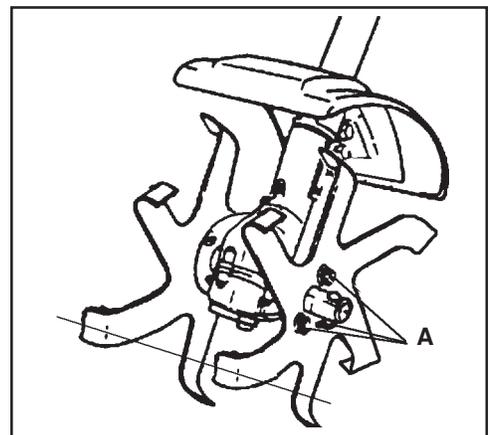
RESETTING TINES FOR DEEP CULTIVATION

Tools Required: 10 mm Wrench

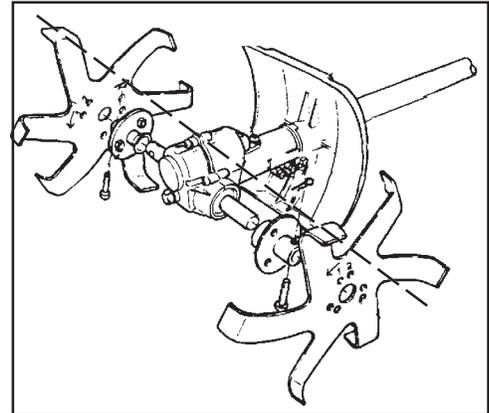
The tines are factory assembled with blade ends offset for standard cultivation. For deep cultivation, the left tine (viewed from the operator's position) must be repositioned on the hub aligning the left and right tine blade ends directly across from each other.



- Remove three (3) bolts (A) mounting left tine to hub. The bolts will be mounted in hole labeled (1).



2. Rotate tine counter clockwise and position hole labeled (2) over hub mounting holes. The tine blade ends should be aligned directly opposite each other.



3. Install and tighten bolts.

MAINTENANCE



WARNING

Moving parts can amputate fingers or cause severe injuries. Keep hands, clothing and loose objects away from all openings. Always stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit. Allow unit to cool before performing service. Wear gloves to protect hands from sharp edges and hot surfaces.

Your ECHO cultivator is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your cultivator 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. If the task is not listed, see your ECHO dealer for repairs.

SKILL LEVELS

Level 1 = Easy to do. Common tools may be required.

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

ECHO offers REPOWER Maintenance Kits and Parts to make your maintenance job easier.

MAINTENANCE INTERVALS

Component/System	Maintenance Procedure	Before use	Every Refuel	Daily or Every 4 hours	25 hours
Drive Shaft	Grease				[1]
Gear Housing	Grease				[2]
Gear Housing/Tines	Clean			•	
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] Apply POWER BLENDX™ Grease every 25 hours of use.

[2] Apply EP "0" or "00" Grease every 25 hours of use.

LUBRICATION

Gear Housing

Level 2

Tools Required: 4 & 5 mm Hex Wrench, 13mm wrench, grease gun, clean rag, brush

Parts required: POWER BLENDX™ 8 oz. (P/N 91014) or Lithium Base Grease (Drive Shaft), EP "0" or "00" Grease (Gear Case)

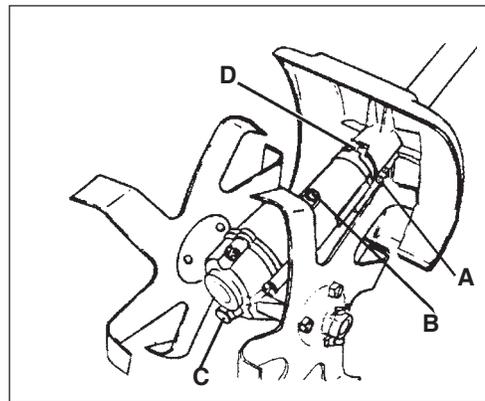
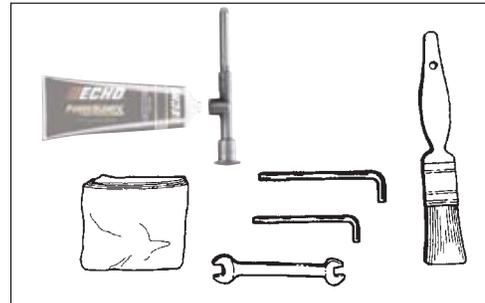
1. Clean all loose debris from gear box.
2. Remove plug (C) and check level of grease.
3. Add grease if necessary. DO NOT over-fill.
4. Install screw plug (C).

Drive Shaft (Lower)

IMPORTANT

Lower 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 gear housing mounting bolt (A) and remove gear housing locator screw (B).
2. Pull gear box from drive shaft housing. Shield will remain on drive shaft.
3. Pull flexible cable from the drive shaft housing, wipe clean and re-coat with a thin coating [15 ml (1/2 oz.)] of grease.
4. Slide the flexible cable back in the drive housing. DO NOT get dirt on the flex cable.
5. Assemble gear housing onto drive shaft correctly matching gear housing to shield cutout (D).
6. Install and tighten locator screw (B).
7. Tighten gear housing mounting bolt (A).



STORAGE

1. Clean cultivator attachment.

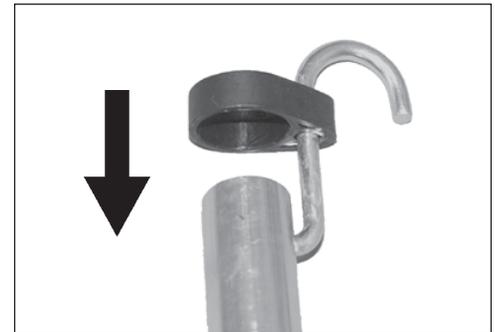
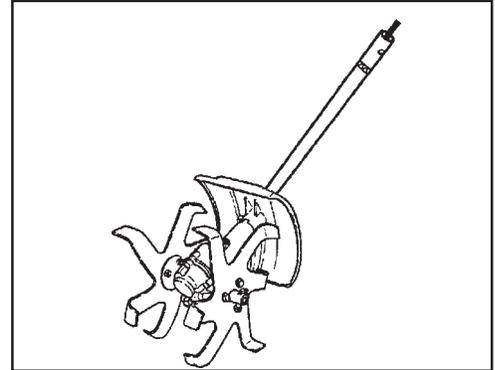
IMPORTANT

Do not immerse this attachment in water. Water will enter gear housing and damage gears, bearings and seals.

2. Apply thin coating of oil to metal parts to prevent rust.
3. Lubricate lower shaft assembly with lithium grease.
4. Store cultivator attachment in a dry, dust free place, out of the reach of children, using supplied storage hook.

Storage Hook Installation

1. Insert small end of hook into locating hole on attachment shaft.
2. Slide plastic cap onto end of attachment shaft.



SPECIFICATIONS

MODELSRMSPLITBOOMANDPAS CULTIVATOR ATTACHMENT

Length 895 mm (35.2 in.)
Width 162 mm (6.4 in.)
Height 211 mm (8.3 in.)
Blade Diameter 216 mm (8.5 in.)
Cultivating Width 160 mm (6.3 in.)
Weight 1.94 kg (4.29 lb.)
Cultivator Mounting Bore 25.0 mm (0.98 in.)
Coupling Square Hole 5.4 x 5.4 mm (0.21 x 0.21 in.)
Gear Reduction Ratio 46.15:1
Gear Case Capacity 38 grams (1.34 oz.)
Gear Case Lubrication EP "0" or "00" Grease
Drive Shaft Lubrication POWER BLENDX™

NOTES

NOTES

SERVICING INFORMATION

PARTS/SERIAL NUMBER

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 and Serial Number of the unit with you. You can find these numbers on the engine housing. For future reference, write them in the space provided below.

Model 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). Dealer information is also available on our Web Site. 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 8:30 am to 4:30 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 REGISTRATION

You may register your Echo equipment using the warranty registration card or register on-line at www.echo-usa.com. Registering provides a direct link between you and ECHO if we find it necessary to contact you.

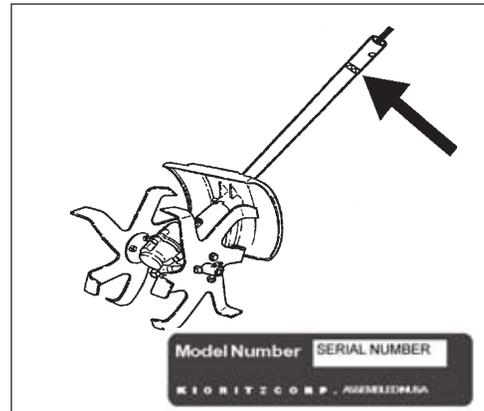
ADDITIONAL OR REPLACEMENT MANUALS

Safety Manuals in English/Spanish or English/French are available, free of charge, from your ECHO dealer or at www.echo-usa.com.

Operator's and Parts Manuals are available by:

- Downloading free from www.echo-usa.com
- Purchasing from your Echo Dealer.
- Manuals are available by sending a written request stating the model number and serial number of your Echo unit, part number of the manual, your name and address, and mail to the address below.

Safety Videos are available from your Echo dealer. A \$5.00 shipping charge will be required for each video.



DEALER?

Call
1-800-432-ECHO
www.echo-usa.com

CONSUMER PRODUCT SUPPORT

1-800-673-1558
8:30 - 4:30 Mon - Fri C.S.T.



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