



99944200513

Cultivator Attachment

FOR MODELS: SRM-2100SB, 2400SB, 210SB, 211SB, 225SB, 260SB, 261SB, PAS-2100, 2400, 2601, 210, 211, 225, 225VP, 225VPB, 230, 231, 260, 261, 265, 266, 280, 2620.

Operator's Manual

WARNING



Users of this equipment risk injury to themselves and others if the unit is used improperly and/or safety precautions are not followed. ECHO provides an operator's manual. It must be read and understood for proper and safe operation. Failure to do so could result in serious injury.

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.

TABLE OF CONTENTS

Introduction	3
The Operator's Manual	3
Servicing Information	3
Parts/Serial Number	3
Service	3
Echo Consumer Product Support	4
Product Registration	4
Additional or Replacement Manuals	4
Safety	4
Manual Safety Symbols and Important Information	4
International Symbols	5
Personal Condition and Safety Equipment	6
Equipment	11
Description	12
Contents	13
Assembly	13
Power Head Shaft/Lower Shaft Assembly	13
Operation	14
Operating Techniques	14
Maintenance	18
Skill Levels	18
Maintenance Intervals	19
Lubrication	19
Drive Shaft (Lower)	20
Storage	21
Storage Hook Installation	22
Specifications	22
Product Registration	22

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. You will find it easy to use and full of helpful operating tips and SAFETY messages.

The Operator's Manual

Keep it in a safe place for future reference. Contains specifications and information for safety, operation, maintenance, storage and assembly specific to this product. Scan QR codes throughout the operator's manual for more information.

SERVICING INFORMATION

Parts/Serial Number

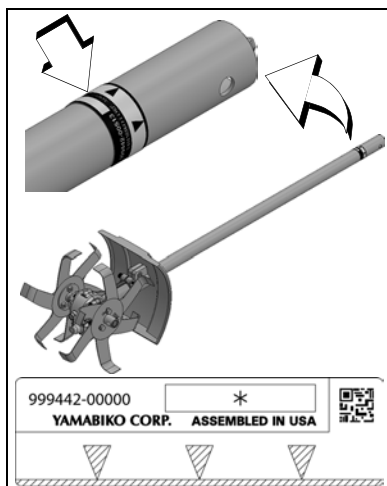
Genuine ECHO Parts and Assemblies for your ECHO products are available only from an Authorized ECHO Dealer. When you do need to buy parts always have the Model Number and Serial Number of the unit with you. You can find these numbers on the engine housing. For future reference write them in the space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

Model No. _____

Serial No. _____

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. www.echo-usa.com. 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, 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.

Product Registration

Register your ECHO equipment on-line at www.echo-usa.com or by filling out the product registration sheet included in this manual. Registering your product confirms warranty coverage and provides a direct link to ECHO if we find it necessary to contact you.

Additional or Replacement Manuals

Replacement Operator or Safety Manuals, and Parts Catalogs, are available from your Authorized ECHO Service Dealer, or at www.echo-usa.com, or by contacting ECHO Inc., 400 Oakwood Road, Lake Zurich, IL 60047 (800-673-1558). Always check www.echo-usa.com for updated information.



Safety Videos are available from your Authorized ECHO Service Dealer. A \$5.00 shipping charge is required for each video.

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.



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.

NOTICE

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.











CIRCLE AND SLASH SYMBOL

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

International Symbols

Symbol	Description	Symbol	Description
	Warning, see Operator’s Manual.		Safety/Alert
	Wear eye, ear and head protection.		Finger Severing
	Wear hand and foot protection.		Rotating Cutting Attachment
	Wear face shield.		Wear slip resistant foot wear.

Symbol	Description	Symbol	Description
	Keep feet away from blade.		Do not operate closer than 15 m (50 ft.) from electrical hazards. Keep bystanders at least 15 m (50 ft.) away.
	DO NOT USE BLADES - Line Head Only		Thrown Objects
	Plan retreat path from falling objects.		Hot Surface
		<p>AVOID KICKOUT Keep bystanders at least 15 m (50 ft.) away.</p> <p>Beware of thrown objects, wear eye protection.</p>	
		<p>Keep bystanders and helpers at least 15 m (50 ft.) away.</p>	

Personal Condition and Safety Equipment

 WARNING

Users of this product risk injury to themselves and others if the unit is used improperly and/or safety precautions are not followed. Proper clothing and safety gear must be worn when operating 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

WARNING

- ◆ **Eye protection that meets ANSI Z87.1 or CE requirements must be worn whenever you operate the unit.**
- ◆ **For additional safety, a full-face shield may be worn over safety glasses or goggles to provide protection from sharp branches or flying debris.**

Hand Protection

Wear sturdy, no-slip, rubber work gloves to improve your grip on the handles. Gloves also provide protection against cuts and scratches, cold environments, and reduce the transmission of machine vibration to your hands.

Hearing/Ear Protection

ECHO recommends wearing hearing protection whenever unit is used.

Breathing Protection

Operators who are sensitive to dust or other common airborne allergens may need to wear a dust mask to prevent inhaling these materials while operating unit. Dust masks can provide protection against dust, plant debris, and other plant matter such as pollen. Make sure the mask does not impair your vision, and replace the mask as needed to prevent air restrictions.

Proper Clothing

Wear snug-fitting, durable clothing:

- Pants should have long legs, shirts should have long sleeves.
- **DO NOT WEAR SHORTS.**
- **DO NOT WEAR TIES, SCARVES, JEWELRY,** or clothing with loose or hanging items that could become entangled in moving parts or surrounding growth.
- Keep clothing buttoned or zipped, and keep shirt tails tucked in.

Wear sturdy work shoes with nonskid rubber 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.

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.

WARNING

The components of this machine generate an electromagnetic field during operation, which may interfere with some pacemakers. To reduce the risk of serious or fatal injury, persons with pacemakers should consult with their physician and the pacemaker manufacturer before operating this machine. In the absence of such information, ECHO does not recommend the use of this machine by anyone who has a pacemaker.

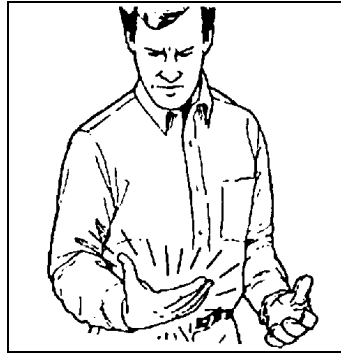
Extended Operation / Extreme Conditions

CAUTION

Prolonged exposure to cold and/or vibration may result in injury. Read and follow all safety and operation instructions to minimize risk of injury. Failure to follow instructions may result in painful wrist/hand/arm injuries.

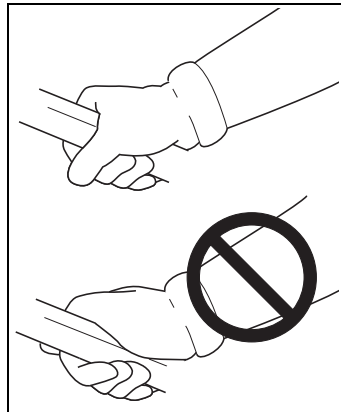
It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals, may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations, followed by loss of color and numbness in the fingers. The following 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 (RSI)

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.

DANGER

All over head electrical conductors and communications wires can have electricity flow with high voltages. This unit is not insulated against electrical current. Never touch wires directly or indirectly, otherwise serious injury or death may result.

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 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

- Always hold throttle handle and support handle 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.

Avoid Hot Surfaces

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



Equipment

WARNING

Use this attachment with ECHO approved models only. Serious injury may result from the use of this attachment combined with a non approved ECHO product.

- Check unit for loose/missing nuts, bolts, and screws. Tighten and/or replace as needed.
- Inspect shield for damage and that shield is securely in place. Replace if shield is damaged or missing.
- Check that the cutting attachment is 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.

Note: ECHO, INC. will not be responsible for the failure of cutting devices, attachments or accessories which have not been tested and approved by ECHO.

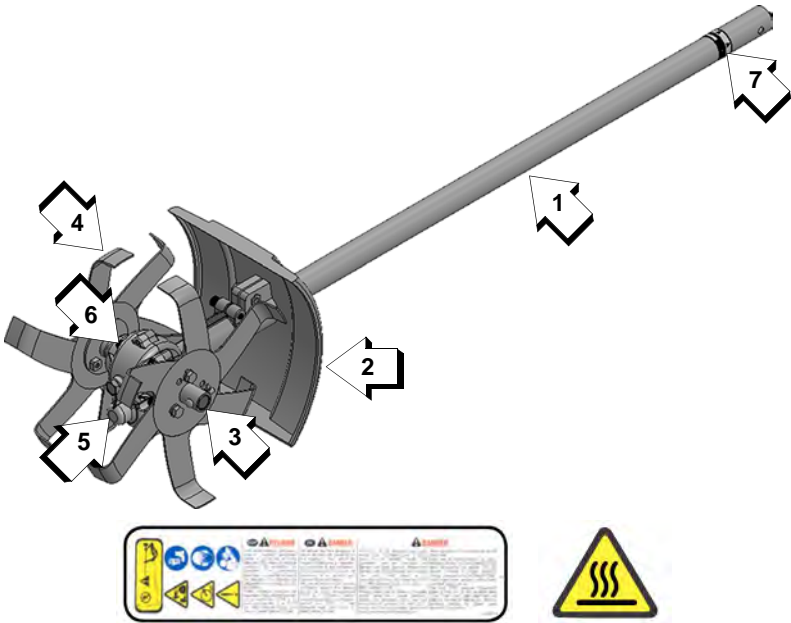
WARNING

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 the safety decal(s) on your unit. Make sure the decal(s) is legible and that you understand and follow the instructions on it. If a decal cannot be read, a new one can be ordered from your ECHO dealer.



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.
4. TINES - Identical on right and left side from operator's position.
5. GREASE ACCESS BOLT
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. Due to packaging restrictions, some 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.

- ____ 1 - PAS Cultivator Attachment
- ____ 1 - Operator's Manual
- ____ 1 - Storage Hook Assembly

ASSEMBLY

Power Head Shaft/Lower Shaft Assembly



Do not perform maintenance or assembly procedures with engine running.

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. Remove cardboard spacer, if necessary.



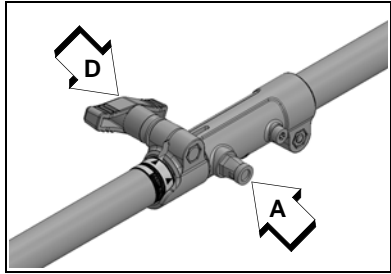
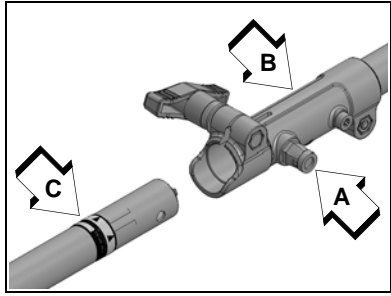
Note: Your coupler may appear different than coupler shown.

5. Carefully fit attachment drive shaft assembly into coupler (B) to decal assembly line (C), making sure that the inner lower drive shaft engages the square upper drive shaft socket.

Note: Earlier model Power Heads may have shorter couplings.

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

6. Rotate locator pin (A) ¼ 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.
7. Secure lower shaft assembly to coupler by tightening clamping knob (D).



OPERATION

Note: Refer to your PAS power source Operator's Manuals for correct engine fueling, starting and stopping instructions.

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.

Operating Techniques

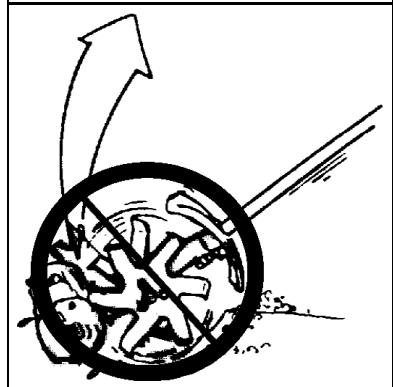
WARNING

- ◆ ***When engine starts tines may rotate. Warn fellow workers and keep children and pets from coming nearer than 4.5 m (15 ft.).***

- ◆ Always grip throttle handle with right hand and support handle with left hand.
- ◆ 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..



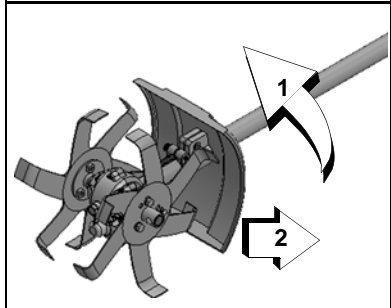
- ◆ Failure to follow these warnings may result in serious injury.



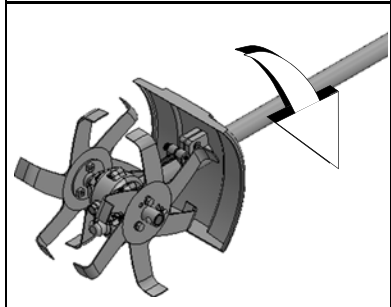
1. The tilling width of the cultivator is approximately 165 mm (6.5 in.). Place cultivator in area to be tilled, hold unit firmly with left hand on front grip and right hand on rear grip and gradually engage throttle trigger. Guide the cultivator allowing the tines to pull forward. The soil hardness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



2. 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.

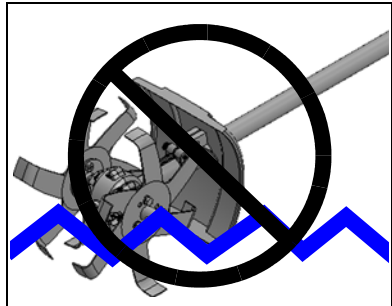


3. To raise or aerate the soil, tilt engine closer to the ground which will raise cultivator tines higher relative to the soil surface.



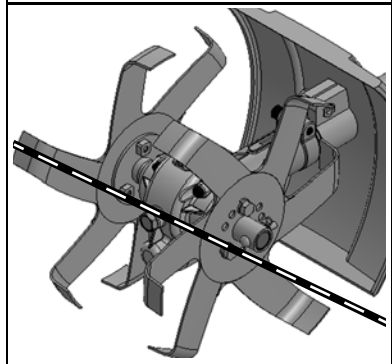
NOTICE

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

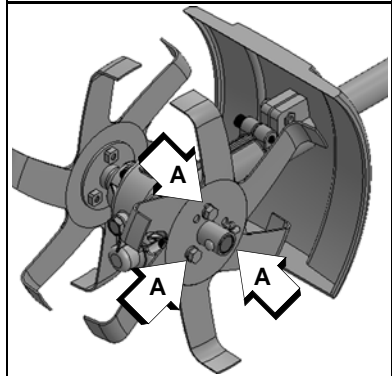


Resetting Tines for Deep Cultivation

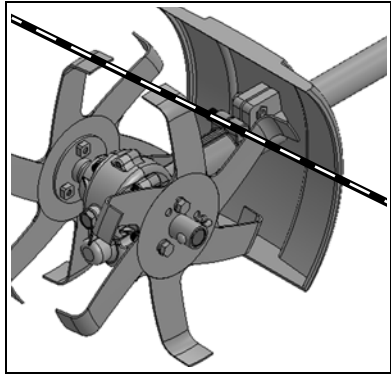
The tines are factory assembled with blade ends offset for standard cultivation. For deep cultivation, the left tine (viewed from the operator's position) must be repositioned on the hub aligning the left and right tine blade ends directly across from each other.



1. 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 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, we recommend that you take your unit to an ECHO Servicing 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. Common tools may be required.

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

Click [HERE](http://www.echo-usa.com/products/maintenance-kit) or go to <http://www.echo-usa.com/products/maintenance-kit> for information on Maintenance Kits.

Maintenance Intervals

Component/ System	Maintenance Procedure	Skill Level	Interval
Drive Shaft	Grease	1	Every 25 hours of use [1]
Gear Housing	Grease	1	Every 25 hours of use [2]
Gear Housing/ Tines	Clean	1	Daily or every 4 hours
Screws/ Nuts/Bolts	Inspect/Tighten/Replace	1	Before each use

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

[1] Apply lithium based grease.

[2] Apply lithium based EP00 grease every 25 hours of use.

Lubrication

Level 2.

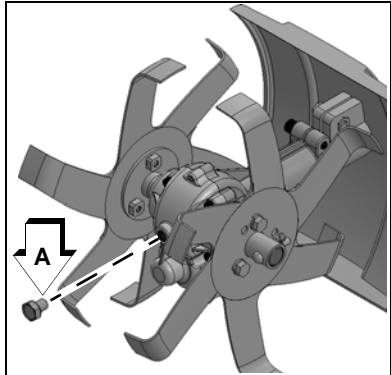
Parts Required: Lithium-based EP00 Grease for gearcase; Lithium Base Grease for driveshaft

Gear Housing

1. Clean all loose debris from gear box.

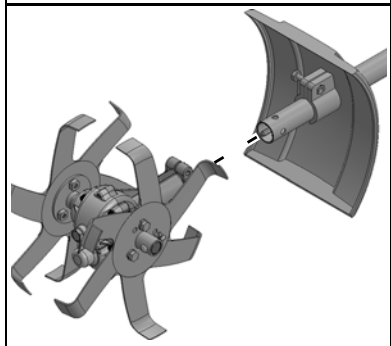
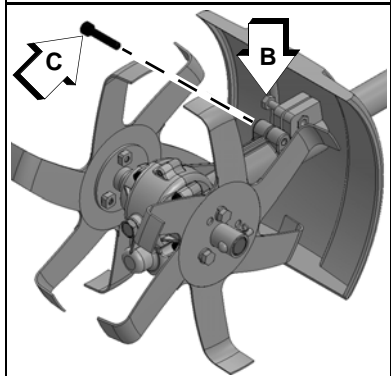


2. Remove grease access bolt (A) and check level of grease.
3. Add grease if necessary. DO NOT over-fill.
4. Install the grease access bolt.

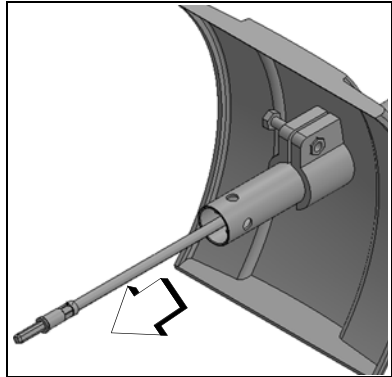


Drive Shaft (Lower)

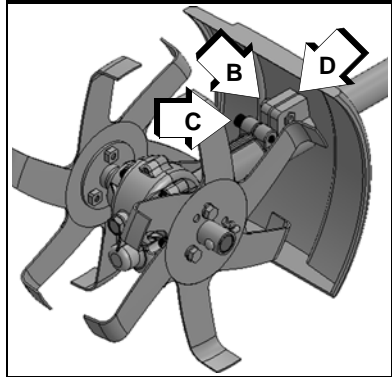
1. Loosen gear housing mounting bolt (B) and remove gear housing locator screw (C).
2. Pull gear box from drive shaft housing. Shield will remain on drive shaft.



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 locater screw (C).
7. Tighten gear housing mounting bolt (B).



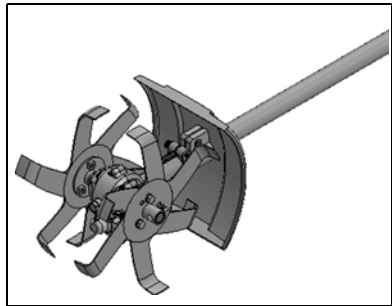
STORAGE

1. Clean cultivator attachment.

NOTICE

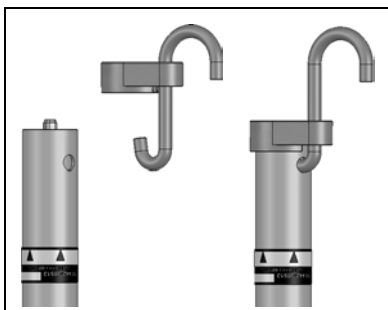
Do not immerse this attachment in water. Water will enter gear housing and damage gears, bearings and seals.

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

MODEL	99944200513
Length	895 mm (35.2 in.)
Width	162 mm (9.10 in.)
Height	211 mm (8.3 in.)
Weight	1.94 kg (3.89 lb.)
Blade Diameter	216 mm (8.5 in.)
Cultivating Width	160 mm (6.3 in.)
Cultivating Mounting Bore	25.0 mm (0.98 in.)
Blade Diameter	216 mm (8.5 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	EP00 Lithium-based grease
Drive Shaft Lubrication	Lithium-based grease

PRODUCT REGISTRATION

Thank you for choosing ECHO Power Equipment

Please go to <http://www.echo-usa.com/Warranty/Register-Your-ECHO> to register your new product on-line. It's **FAST** and **EASY!** NOTE: your information will never be sold or misused by ECHO, Inc. Registering your purchase enables us to contact you in the unlikely event of a service update or product recall, and verifies your ownership for warranty consideration.

If you do not have access to the Internet, you can complete the form below and mail to:

ECHO Inc., Product Registration, PO Box 1139, Lake Zurich IL 60047.



PRODUCT REGISTRATION CARD : TARJETA DE REGISTRO : CARTE D'ENREGISTREMENT DU PRODUIT

ONLINE OPTION: Register online and save a stamp! You will be alerted of product updates and/or be sent new ECHO product information and special offers. Simply go to: www.echo-usa.com

OPCIÓN POR INTERNET: Regístrese en la página web y ahorre una estampilla! Le alertarán sobre actualizaciones del producto y/o se le enviará información sobre los nuevos productos ECHO y ofertas especiales. Simplemente visite: www.echo-usa.com

OPTION EN LIGNE: Enregistrer en ligne et épargner un timbre! Vous serez informé sur les nouveaux produits ECHO et les mises à jour de produit ainsi que les offres spéciales. Simplement visitez le: www.echo-usa.com

Please Print : Por Favor Enscriba Con Letra De Molde : En Lettre Carré S.V.P.

Confidential: Information provided will not be shared or sold

Purchaser's Name : Nombre del Comprador : Nom de l'acheteur	
Address : Dirección : Adresse	
City : Ciudad : Ville	Zip Code - Código Postal : Code Postal
State : Estado : Province	
E-Mail Address : Dirección De Correo Electrónico : Courriel Electronique	
Phone Number : Número De Teléfono : Téléphone	Date of Purchase : Fecha de la Compra : Date de l'achat
Where Purchased : Nombre del Almacén donde fue Comprado : Lieu d'achat	
Model Number : Numero del Modelo : No. de modèle	Serial Number : Numero de Serie : No. de série

Registering your purchase enables us to contact you in the unlikely event of a service update or product recall and verifies your purchase. We will never give your personal information to anyone. We will not share your information with anyone without your consent. Please do not provide your personal information to anyone who asks for it. We will not share your information with anyone without your consent. Please do not provide your personal information to anyone who asks for it. L'enregistrement de votre achat nous permettra de vous contacter dans le cas improbable de modifications des instructions d'emballage ou de rappel du produit et vérifier que vous êtes le propriétaire en cas de vol ou de perte.

Primary use of tool: Professional Homeowner Rental Equip.
 Uso primario de la herramienta: Profesional Dueño de casa Alquiler
 Usage principal: Professionnel Résidentiel Location
 Do you wish to receive periodic ECHO product information and special offers by e-mail? Yes No
 ¿Desea usted recibir información periódica y ofertas especiales por correo electrónico sobre el producto ECHO? Yes No
 Souhaitez-vous recevoir périodiquement de l'information sur les produits ECHO et les offres spéciales par courrier électronique? Oui Non
 Did you visit the ECHO website before purchasing your product? Yes No
 Visitéz-vous le site ECHO avant de acheter votre produit? Oui Non
 Avez-vous visité le site d'ECHO avant de procurer votre produit? Oui Non
 What factor(s) most influenced your purchase?
 Performance Price Dealer
 Reliability Prior Experience Quality
 Friend/Family Brand Warranty
 ¿Que factor(es) influenció más en su compra?
 Funcionamiento Precio Distribuidor
 Confiabilidad Experiencia Anterior Calidad
 Amigo/Familia Marca Garantía
 Quel facteur (facteurs) vous a influencé le plus?
 Performance Prix Marchand
 Fiabilité Expérience Qualité
 Ami/Famille Marque Garantie

ECHO INC. 400 Oakwood Rd., Lake Zurich, IL 60047
 1.800.432.ECHO WWW.ECHO-USA.COM

X7572270206 02-2012



S06900029000 - S06900999999



ECHO, INCORPORATED

400 Oakwood Road
Lake Zurich, IL 60047

www.echo-usa.com