



Operator's Manual DPAS-2100 Pro Attachment Series™

WARNING

Read and understand all provided literature before use. Failure to do so could result in serious injury.

WARNING



Cancer and Reproductive Harm
www.P65Warnings.ca.gov

Note: This product complies with CAN ICES-003(B) / NMB-003(B)

99922238047

© 06/2025 ECHO Incorporated

TABLE OF CONTENTS

Introduction.....4

Servicing Information.....4

 Parts / Serial Number.....4

 Service.....5

 ECHO Consumer Product Support.....5

 Product Registration.....5

 Additional Literature.....5

Safety.....6

 Manual Safety Symbols and Important Information.....6

 International Symbols.....7

 Handling the Product.....9

 Enviromentally Battery Disposal.....14

 FCC Statement.....16

 Equipment.....17

 General Safety Warnings and Instructions for the following ECHO tools: Curved Shaft Edger, Straight Shaft Edger, Tiller Cultivator, or Pole Pruner, or DPAS unit configured as a Curved Shaft Edger, Straight Shaft Edger, Tiller Cultivator, or Pole Pruner.....18

 General Safety Warnings and Instructions for the following ECHO tool: Blower or DPAS unit configured as a Blower.....19

 General Safety Warnings and Instructions for the following ECHO tools: Hedge Trimmer, Mid-Reach Hedge Trimmer, Shafted Hedge Trimmer, or Articulating Hedge Trimmer, or DPAS unit configured as a Hedge Trimmer, Mid-Reach Hedge Trimmer, Shafted Hedge Trimmer, or Articulating Hedge Trimmer.....21

 General Safety Warnings and Instructions for the following ECHO tools: All DSRM and DGT models, and DPAS units configured as trimmers and brush cutters.....22

Description.....30

Contents.....31

Assembly.....32

 Unpack The Machine.....32

 Attach The Support Handle.....33

 Power Head Shaft to Lower Shaft Assembly.....34

 Battery Charging.....35

 Install The Battery.....37

 Remove The Battery.....37

Operation.....38

 Starting unit.....38

 Stop The Machine.....39

 Applications.....39

 Operating Techniques - Nylon Line Head.....39

 Operating Techniques - Metal or Plastic Blade.....40

 Reaction Forces.....41

 Blade Cutting Problems.....42

Maintenance.....43

 Skill Levels.....44

 Maintenance Intervals.....44

 Maintenance and Care.....44

Nylon Line Replacement.....45

Nylon Line Head Disassembly Instructions.....47

Sharpening Metal Blades.....47

Troubleshooting.....49

Storage.....50

 Storage After Use.....50

 Disposal.....50

Specifications.....52

 ECHO Optional Attachments.....53

Product Registration.....55

Warranty.....57

INTRODUCTION

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.



Read and understand all provided literature. Literature contains specifications and information for safety, operation, maintenance, storage, and assembly specific to this product. Scan QR code for more information.



For additional literature, including safety manuals where applicable, or questions regarding terms used in this manual, visit:

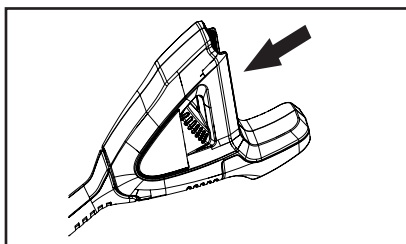
<https://www.echo-usa.com/manuals>



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. 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 1-800-432-ECHO (3246) 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 online 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 Literature

In addition to finding information online, information is available from your Authorized ECHO Service Dealer, or by contacting ECHO Incorporated, 400 Oakwood Road, Lake Zurich, IL 60047, 1-800-432-ECHO (3246).

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 **might** 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.






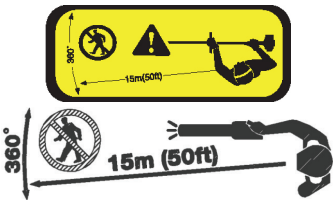





CIRCLE AND SLASH SYMBOL

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

International Symbols

Some of the following symbols may be used on this product. Please study them and learn their meaning. Proper interpretation of these symbols will allow you to operate the product better and safer.

Symbol	Description	Symbol	Description
	Direct current		Safety / Alert
	Read and follow all safety precautions in the operator's manual. Failure to follow instructions could result in serious personal injury.		Wear eye, ear and head protection.
	Wear hand and foot protection.		Beware of fire
	Do not dispose in household trash.		Do not expose to rain or in damp condition.
	Wear face shield.		Finger severing
	Keep feet away from blade.		Do not use line head - blades only.
	Hot surface		Do not use blades - line heads only.
	Wear slip resistant footwear.		Rotating cutting attachment

Symbol	Description	Symbol	Description
		Avoid kickout - keep bystanders at least 15 m (50ft.) away.	
		Beware thrown objects Wear eye protection	
		Keep bystanders and helpers away 15 m (50ft.)	
		Thrown objects can ricochet and result in personal injury or property damage.	
		Avoid blade kickout.	
	Guaranteed sound power level		Plan a retreat path from falling objects.
	Do not operate closer than 15 m (50ft.) from electrical hazards. Keep bystanders at least 15 m (15ft.) away.		

Note: Not all symbols will appear on your unit.

Read the Manuals

- Provide all users of this equipment with the operator’s manual for instructions on safe operation.

Clear the Work Area

- Always clear the work area of foreign objects such as rocks, broken glass, nails, wire, or string, which can be thrown or become entangled in the cutting attachment, and check for any hidden hazards. Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 50 ft. (15 m) while the unit is in use.
- Outside the 50 ft. (15 m) zone, there is still a risk of injury from thrown objects.
- Bystanders should be encouraged to wear eye protection.
- If you are approached, stop the unit and cutting attachment.
- When a bladed unit is used, there is the added risk of injury to bystanders being struck with the moving blade in the event of a blade thrust or other unexpected reaction of the blade.

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 overreach.

Handling the Product

General Safety Warnings and Instructions

This section contains the prescribed general safety warnings and instructions for battery-powered products contained in UL 2595 and for handheld tools, transportable tools and lawn and garden machinery contained in UL 62841-1. Additional important warnings and instructions are provided in subsequent sections of this manual.

Important Safety Instructions

WARNING

Read all safety warnings, instructions, illustrations, and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire, serious injury and/or property damage.

Save all warnings and instructions for future reference.

The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

Work Area Safety

- **Keep work area clean and well lit.** *Cluttered or dark areas invite accidents.*
- **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** *Power tools create sparks which may ignite the dust or fumes.*
- **Keep children and bystanders away while operating a power tool.** *Distractions can cause you to lose control.*

Electrical Safety

- **Power tool plugs must match the outlet. Never modify the plug in any way.** *Do not use any adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce the risk of electric shock.*
- **Avoid body contact with earthed or grounded surfaces, such as pipes, radiators, ranges and refrigerators.** *There is an increased risk of electric shock if your body is earthed or grounded.*
- **Do not expose power tools to rain or wet conditions.** *Water entering a power tool will increase the risk of electric shock.*
- **Do not abuse the cord.** *Never use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.*
- **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** *Use of a cord suitable for outdoor use reduces the risk of electric shock.*
- **If operating a power tool in a damp location is unavoidable, use a RESIDUAL CURRENT DEVICE (RCD) protected supply.** *Use of an RCD reduces the risk of electric shock.*

Personal Safety

- **Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication.** *A moment of inattention while operating power tools may result in serious personal injury.*
- **Use personal protective equipment. Always wear eye protection.** *Protective equipment such as a dust mask, non-skid safety shoes, hard hat or hearing protection used for appropriate conditions will reduce personal injuries.*

- **Prevent unintentional starting.** Ensure the switch is in the off position before connecting to power source and/or battery pack, picking up or carrying the tool. *Carrying power tools with your finger on the switch or energising power tools that have the switch on invites accidents.*
- **Disconnect the battery pack from the appliance before making any adjustments, changing accessories, or storing appliance.** *Such preventive safety measures reduce the risk of starting the appliance accidentally.*
- **Remove any adjusting key or wrench before turning the power tool on.** *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*
- **Do not overreach. Keep proper footing and balance at all times.** *This enables better control of the power tool in unexpected situations.*
- **Dress properly. Do not wear loose clothing or jewellery. Keep your hair and clothing away from moving parts.** *Loose clothes, jewellery or long hair can be caught in moving parts.*
- **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** *Use of dust collection can reduce dust-related hazards.*
- **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles.** *A careless action can cause severe injury within a fraction of a second.*

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.
- 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.
- DO NOT WEAR OPEN TOED SHOES.
- DO NOT OPERATE UNIT WITH BARE FEET.

Power Tool Use and Care

- **Do not force the power tool. Use the correct power tool for your application.** *The correct power tool will do the job better and safer at the rate for which it was designed.*

- **Do not use the power tool if the switch does not turn it on and off.** *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*
- **Disconnect the plug from the power source and/or remove the battery pack, if detachable, from the power tool before making any adjustments, changing accessories, or storing power tools.** *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
- **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** *Power tools are dangerous in the hands of untrained users.*
- **Maintain power tools and accessories.** Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use. *Many accidents are caused by poorly maintained power tools.*
- **Keep cutting tools sharp and clean.** *Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.*
- **Use the power tool, accessories and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** *Use of the power tool for operations different from those intended could result in a hazardous situation.*
- **Keep handles and grasping surfaces dry, clean and free from oil and grease.** *Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.*

Battery Tool Use and Care

- **Recharge batteries only with ECHO eFORCE® 56V battery series chargers.** *A charger that is suitable for one type of battery may create a risk of fire when used with another battery.*
- **Use only with ECHO eFORCE® 56V battery series.** *Use of any other battery may create a risk of injury and fire.*
- **When battery pack is not in use, keep it away from other metal objects like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another.** *Shorting the battery terminals together may cause burns or fire.*
- **Do not open or destroy the battery.** *Electrolytes contained within the battery are corrosive and may cause damage to eyes or skin if released. It may be toxic if swallowed.*
- **Under abusive conditions, liquid may be ejected from the battery; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** *Liquid ejected from the battery may cause irritation or burns.*

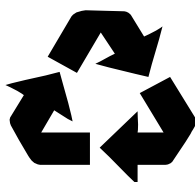
- **Exercise care in handling batteries to avoid shorting the battery with conducting materials such as rings, bracelets, keys, etc.** *The battery or conductor may overheat and cause burns if contact with said materials is made.*
- **Do not use a battery pack or tool that is damaged or modified.** *Damaged or modified batteries may exhibit unpredictable behavior resulting in fire, explosion or risk of injury.*
- **Do not expose a battery pack or tool to fire or excessive temperature.** *Exposure to fire or temperature above 266 °F (130 °C) may cause explosion.*
- **Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions.** *Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.*

Service

- **Do not modify or attempt to repair the appliance or the battery pack (as applicable) except as indicated in the instructions for use and care.**
- **Have your power tool serviced by a qualified repair person using only identical replacement parts.** *This will ensure that the safety of the power tool is maintained.*
- **Never service damaged battery packs.** *Service of battery packs should only be performed by the manufacturer or authorized service providers.*

SAVE THESE INSTRUCTIONS

Environmentally Safe Battery Disposal



Recycle your ECHO eFORCE® 56V battery for free at Rechargeable Battery Recycling Corporation (RBRC) recycling locations. Call 1-800-822-8837 or visit <https://www.call2recycle.org> for details.

The toxic and corrosive materials below are in the batteries used in this machine: Lithium-Ion, a toxic material.

WARNING

Discard all toxic materials in a specified manner to prevent contamination of the environment. Before discarding a damaged or worn out Lithium-ion battery, contact your local waste disposal agency, or the local Environmental Protection Agency for information and specific instructions. Take the batteries to a local recycling and/or disposal center, certified for Lithium-ion disposal.

WARNING

If the battery cracks or breaks, with or without leaks, do not recharge it and do not use. Discard it and replace with a new battery. DO NOT TRY TO REPAIR IT! To prevent injury and risk of fire, explosion, or electric shock, and to avoid damage to the environment:

- Cover the terminals of the battery with heavy-duty adhesive tape.
- DO NOT try to remove or destroy any of the battery components.
- DO NOT try to open the battery.
- If a leak develops, the released electrolytes are corrosive and toxic. DO NOT get the solution in the eyes or on skin, and do not swallow it.
- DO NOT put these batteries in your regular household trash.
- DO NOT incinerate.
- DO NOT put them where they will become part of any waste landfill or municipal solid waste stream.
- Take them to a certified recycling or disposal center.

Recommended Ambient Temperatures:

	Charging		Usage/Discharging		Storage	
	Low	High	Low	High	Low	High
Product ⁽¹⁾	Not Applicable		32°F (0°C)	113°F (45°C)	32°F (0°C)	113°F (45°C)
Battery ⁽²⁾⁽³⁾	39°F (4°C)	104°F (40°C)	32°F (0°C)	113°F (45°C)	32°F (0°C)	113°F (45°C)
Charger	39°F (4°C)	104°F (40°C)	Not Applicable		32°F (0°C)	113°F (45°C)

⁽¹⁾ Assumes the battery is just off the charger or stored at the temperature range noted for Charger Usage 39° F (4°C) - 104°F (40°C).

⁽²⁾ Hot batteries in high ambient temperatures require longer charge times.

⁽³⁾ To maximize battery life of batteries being stored more than 3 months, ECHO recommends batteries being stored at 3 green lights on the battery capacity indicator (BCI) and at room temperature.

Note: Long term storage of batteries in conditions or charge levels on the battery capacity indicator (BCI) other than noted above could degrade the performance and runtime of the battery.

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

CAUTION

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTICE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. The reception can be determined by turning the equipment off and on. The user is encouraged to try to correct the interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and the receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

Equipment

WARNING

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

- **Do not attempt to modify this product. Serious injury can result from the use of any modified product. DO NOT put them where they will become part of any waste landfill or municipal solid waste stream. Take them to a certified recycling or disposal center.**
- **Check unit for loose or missing nuts, bolts, and screws. Tighten or replace as needed.**
- **Inspect shield for damage and ensure that shield is properly installed, and that the cutoff knife is securely in place. Replace if either is damaged or missing.**
- **Check that the cutting attachment is firmly attached and in safe operating condition.**
- **Manufacturer recommended flexible non-metallic line is installed in the trimmer head.**
- **Assure that power switch, lock-off lever switch, operator presence switch, and enable button all work properly.**
- **Check that handle and harness (if included) are installed and adjusted for safe, comfortable operation. See Assembly Section for proper adjustment.**

WARNING

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

- **ALWAYS stop unit and make sure all moving parts have come to a complete stop before assembling unit, removing obstructions, clearing debris, or servicing unit.**
- **DO NOT start or operate unit unless all guards and protective covers are properly assembled to unit.**
- **ALWAYS remove battery or unplug unit before adjusting guards or handles.**
- **ALWAYS stop machine, remove battery and inspect if unit strikes a hard object, or if excessive vibration is felt.**
- **NEVER reach into any opening while the unit is running. Moving parts may not be visible through openings.**

- Position wiring safely to prevent snagging, separation of connectors, or breakage during operation. Gather excess wire, and secure with wiring clamp if provided on equipment.
- Check wiring and connectors for nicks, cuts, exposed wire, or other damage, and repair or replace as needed. Exposed wire or connectors can cause shocks, sparks, and risk of fire or explosion, resulting in serious injury.
- Check wire terminals for secure connections.

General Safety Warnings and Instructions for the following ECHO tools: Curved Shaft Edger, Straight Shaft Edger, Tiller Cultivator, or Pole Pruner, or DPAS unit configured as a Curved Shaft Edger, Straight Shaft Edger, Tiller Cultivator, or Pole Pruner.

This section contains the prescribed general safety warnings and instructions for handheld, motor-operated electric trimmers, lawn edgers, cultivators, brushcutters, and pole pruners contained in UL 82. Additional important warnings and instructions are provided in subsequent sections of this manual.

IMPORTANT SAFETY INSTRUCTIONS

WARNING

When using electric trimmers, lawn edgers, cultivators, and pole pruners basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:

READ ALL INSTRUCTIONS.

1. Avoid Dangerous Environment - Don't use appliances in damp or wet locations.
2. Don't Use in Rain.
3. Keep Children Away - All visitors should be kept at a distance from work area.
4. Dress Properly - Do not wear loose clothing or jewelry. They can be caught in moving parts. Use of rubber gloves and substantial footwear is recommended when working outdoors. Wear protective hair covering to contain long hair.
5. Use Safety Glasses - Always use face or dust mask if operation is dusty.
6. Use Right Tool - Do not use tool for any job except that for which it is intended.

7. Avoid Unintentional Starting - Don't carry tool with finger on switch. Be sure switch is off when plugging in.
8. Don't grasp exposed cutting blades or cutting edges when picking up or holding the tool.
9. Don't Force Tool - It will do the job better and with less likelihood of a risk of injury at the rate for which it was designed.
10. Don't Overreach - Keep proper footing and balance at all times.
11. Stay Alert - Watch what you are doing. Use common sense. Do not operate appliance when you are tired.
12. Store Idle Tools Indoors - When not in use, trimmer, tools should be stored indoors in dry, locked place out of reach of children with the battery removed.
13. Maintain Tool with Care - Keep cutting edge sharp and clean for best performance and to reduce the risk of injury. Follow instructions for lubricating and changing accessories. Keep handles dry, clean, and free from oil and grease.
14. Check Damaged Parts - Before further use of the appliance, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other condition that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center unless indicated elsewhere in this manual.
15. Edger
 - Keep guards in place and in working order.
 - Keep metal blades sharp.
 - Keep hands and feet away from cutting area.
16. Cultivator
 - Keep hands away from blades.
17. Pole Pruner
 - Keep all parts of the body away from the saw chain. Do not remove cut material or hold material to be cut when blades are moving. Make sure the switch is off when clearing jammed material. Saw chain continues to move after the switch is turned off. A moment of inattention while operating the extended-reach pruner may result in serious personal injury.
 - Carry the extended-reach pruner by the handle with the saw chain stopped. When transporting or storing the extended-reach pruner, always fit the saw chain device cover. Proper handling of the extendedreach pruner will reduce possible personal injury from the saw chain.
 - Hold the extended-reach pruner by insulated gripping surfaces only, because the saw chain may contact hidden wiring. A saw chain contacting a "live" wire may make exposed metal parts of the extended-

reach pruner "live" and could give the operator an electric shock.

- Do not use the extended-reach pruner in bad weather conditions, especially when there is a risk of lightning. This decreases the risk of being struck by lightning.
- To reduce the risk of electrocution, never use near any electrical power lines. Contact with or use near power lines may cause serious injury or electric shock resulting in death.
- Always use two hands when operating the extended-reach pruner. Hold the extended-reach pruner with both hands to avoid loss of control.
- Always use head protection when operating the extended-reach pruner overhead. Falling debris can result in serious personal injury.

General Safety Warnings and Instructions for the following ECHO tool: Blower or DPAS unit configured as a Blower.

This section contains the prescribed general safety warnings and instructions for handheld, motor-operated electric blowers contained in UL 1017. Additional important warnings and instructions are provided in subsequent sections of this manual.

IMPORTANT SAFETY INSTRUCTIONS

When using an electrical appliance, basic precautions should always be followed, including the following:

READ ALL INSTRUCTIONS

WARNING

To reduce the risk of fire, electric shock, or injury:

1. Do not allow to be used as a toy. Close attention is necessary when used by or near children.
2. Use only as described in this manual. Use only manufacturer's recommended attachments.
3. Do not put any object into openings. Do not use with any opening blocked; keep free of dust, lint, hair, and anything that may reduce air flow.
4. Keep hair, loose clothing, fingers, and all parts of body away from openings and moving parts.
5. Turn off all controls before unplugging.
6. Use extra care when cleaning on stairs.
7. Do not use to pick up flammable or combustible liquids, such as gasoline, or use in areas where they may be present.

General Safety Warnings and Instructions for the following ECHO tools: Hedge Trimmer, Mid-Reach Hedge Trimmer, Shafted Hedge Trimmer, or Articulating Hedge Trimmer, or DPAS unit configured as a Hedge Trimmer, Mid-Reach Hedge Trimmer, Shafted Hedge Trimmer, or Articulating Hedge Trimmer.

This section contains the prescribed general safety warnings and instructions for handheld, motor-operated electric hedge trimmers contained in UL 62841-4-2. Additional important warnings and instructions are provided in subsequent sections of this manual.

WARNING

Read all safety warnings, instructions, illustrations, and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Hedge Trimmer Safety Warnings:

- 1. Keep all parts of the body away from the blade. Do not remove cut material or hold material to be cut when blades are moving.** Blades continue to move after the switch is turned off. A moment of inattention while operating the hedge trimmer may result in serious personal injury.
- 2. Carry the hedge trimmer by the handle with the blade stopped and taking care not to operate any power switch.** Proper carrying of the hedge trimmer will decrease the risk of inadvertent starting and resultant personal injury from the blades.
- 3. When transporting or storing the hedge trimmer, always fit the blade cover.** Proper handling of the hedge trimmer will decrease the risk of personal injury from the blades.
- 4. When clearing jammed material or servicing the unit, make sure all power switches are off and the power cord is disconnected.** Unexpected actuation of the hedge trimmer while clearing jammed material or servicing may result in serious personal injury.
- 5. Hold the hedge trimmer by insulated gripping surfaces only, because the blade may contact hidden wiring or its own cord.** Blades contacting a "live" wire may make exposed metal parts of the hedge trimmer "live" and could give the operator an electric shock.
- 6. Keep all power cords and cables away from cutting area.** Power cords or cables may be hidden in hedges or bushes and can be accidentally cut by the blade.
- 7. Do not use the hedge trimmer in bad weather conditions, especially**

when there is a risk of lightning. This decreases the risk of being struck by lightning.

Extended-Reach Hedge Trimmer Safety Warnings:

- 1. To reduce the risk of electrocution, never use the extended-reach hedge trimmer near any electrical power lines.** Contact with or use near power lines may cause serious injury or electric shock resulting in death.
- 2. Always use two hands when operating the extended reach hedge trimmer.** Hold the extended-reach hedge trimmer with both hands to avoid loss of control.
- 3. Always use head protection when operating the extended-reach hedge trimmer overhead.** Falling debris can result in serious personal injury.

General Safety Warnings and Instructions for the following ECHO tools: All DSRM and DGT models, and DPAS units configured as trimmers and brush cutters.

This section contains the prescribed general safety warnings and instructions for handheld, motor-operated electric lawn trimmers, lawn edge trimmers, grass trimmers, brush cutters, and brush saws contained in UL 62841-4-4. Additional important warnings and instructions are provided in subsequent sections of this manual.

WARNING

Read all safety warnings, instructions, illustrations, and specifications provided with this power tool. Failure to follow all instructions listed below may result in electric shock, fire and/or serious injury.

Safety Warnings:

- 1. Do not use the machine in bad weather conditions, especially when there is a risk of lightning.** This decreases the risk of being struck by lightning.
- 2. Thoroughly inspect the area for wildlife where the machine is to be used.** Wildlife may be injured by the machine during operation.
- 3. Thoroughly inspect the area where the machine is to be used and remove all stones, sticks, wires, bones, and other foreign objects.** Thrown objects can cause personal injury.
- 4. Before using the machine, always visually inspect to see that the cutter or blade and the cutter or blade assembly are not damaged.** Damaged parts increase the risk of injury.

5. **Before use, check the supply cord and any extension cord for signs of damage or aging. Do not use the machine if the cord is damaged or worn. If the cord is damaged or worn during use, switch off the machine and do not touch the cord before disconnecting it from the supply.** A damaged supply cord or extension cord may result in electric shock, fire and/or serious injury.
6. **Follow instructions for changing accessories.** Improperly tightened blade securing nuts or bolts may either damage the blade or result in it becoming detached.
7. **The rated rotational speed of the blade must be at least equal to the maximum rotational speed marked on the machine.** Blades running faster than their rated rotational speed can break and fly apart.
8. **Wear eye, ear, head, and hand protection.** Adequate protective equipment will reduce personal injury by flying debris or accidental contact with the cutting line or blade.
9. **While operating the machine, always wear non-slip and protective footwear. Do not operate the machine when barefoot or wearing open sandals.** This reduces the chance of injury to the feet from contact with the moving cutters or lines.
10. **While operating the machine, always wear safety footwear. Do not operate the machine when barefoot or wearing open sandals.** This reduces the chance of injury to the feet from contact with a moving cutter, line, or blade.
11. **While operating the machine, always wear long trousers.** Exposed skin increases the likelihood of injury from thrown objects.
12. **Keep bystanders away while operating the machine.** Thrown debris can result in serious personal injury.
13. **Always use two hands when operating the machine.** Holding the machine with both hands will avoid loss of control.
14. **Hold the machine by insulated gripping surfaces only, because the cutting line or blade may contact hidden wiring or its own cord.** Cutting line or blades contacting a "live" wire may make exposed metal parts of the machine "live" and could give the operator an electric shock.
15. **Always keep proper footing and operate the machine only when standing on the ground.** Slippery or unstable surfaces may cause a loss of balance or control of the machine.
16. **Do not operate the machine on excessively steep slopes.** This reduces the risk of loss of control, slipping and falling which may result in personal injury.
17. **When working on slopes, always be sure of your footing, always work across the face of slopes, never up or down and exercise extreme caution when changing direction.** This reduces the risk of loss of control, slipping and falling which may result in personal injury.
18. **Keep the supply cord away from the cutter, line or blade.** A damaged

supply cord may result in electric shock, fire and/or serious injury.

19. **Keep all parts of the body away from the cutter, line or blade when the machine is operating. Before you start the machine, make sure the cutter, line or blade is not contacting anything.** A moment of inattention while operating the machine may result in injury to yourself or others.
20. **Do not operate the machine above waist height.** This helps prevent unintended cutter or blade contact and enables better control of the machine in unexpected situations.
21. **When cutting brush or saplings that are under tension, be alert for spring back.** When the tension in the wood fibers is released, the brush or sapling may strike the operator and/or throw the machine out of control.
22. **Use extreme caution when cutting brush and saplings.** The slender material may catch the blade and be whipped toward you or pull you off balance.
23. **Maintain control of the machine and do not touch cutters, lines or blades and other hazardous moving parts while they are still in motion.** This reduces the risk of injury from moving parts.
24. **When clearing jammed material or servicing the machine, make sure all power switches are off and the power cord is disconnected.** Unexpected starting of the machine while clearing jammed material or servicing may result in serious personal injury.
25. **Carry the machine with the machine switched off and away from your body.** Proper handling of the machine will reduce the likelihood of accidental contact with a moving cutter, line, or blade.
26. **When transporting or storing the machine, always fit the cover on metal blades.** Proper handling of the machine will reduce the likelihood of accidental contact with the blade.
27. **Only use replacement cutters, lines, cutting heads and blades specified by the manufacturer.** Incorrect replacement parts may increase the risk of breakage and injury.

Blade Thrust Safety Warnings:

1. **Maintain a firm grip with both hands on the machine and position your arms to resist blade thrust. Position your body to the left side of the machine.** Blade thrust can increase the risk of injury due to the machine moving unexpectedly. Blade thrust can be controlled by the operator if proper precautions are taken.
2. **If the blade binds, or when interrupting a cut for any reason, switch the machine off and hold the machine motionless in the material until the blade comes to a complete stop. While the blade is binding, never attempt to remove the machine from the material or pull the machine backward while the blade is in motion, otherwise blade thrust may occur.** Investigate and take corrective actions to eliminate the cause of

blade binding.

3. **Do not use blunt or damaged blades.** Blunt or damaged blades increase the risk of jamming or catching on an object resulting in blade thrust.
4. **Always maintain good visibility of the material being cut.** Blade thrust is more likely to occur in areas where it is difficult to see the material being cut.
5. **If you are approached by another person while operating the machine, switch the machine off.** There is an increased risk of injury to other persons being struck by the moving blade in the event of blade thrust.

This section contains additional warnings and instructions contained in UL 62841-4-2 and 62841-4-4.

For grass trimmers, brush cutters, and brush saws, according to the type of supplied cutting accessory:

WARNING

- ♦ **ALWAYS** remove battery or unplug unit before adjusting guards or handles.
- ♦ **ALWAYS** stop machine, remove battery and inspect if unit strikes a hard object, or if excessive vibration is felt.
- ♦ Cutoff knife is sharp. Wear gloves to protect hands.
- ♦ Always hold throttle handle with right hand and support handle with left hand, placing unit on right side of body.
- ♦ **Assure** all ventilation openings are clear of debris.

Note: To advance trimmer line, tap trimmer head against the ground while the head is turning at normal operating speed.

Operation With Blades:

WARNING

Metal blades are very sharp and can cause severe injuries, even if unit is off and blades are not moving. Avoid contact with blades. Wear gloves to protect hands.

WARNING

Blade use demands specific brushcutter configuration. Operation without specified shield, barrier bar or U-handle, and harness can result in serious personal injury. Follow installation instructions.

Pro Maxi-Cut Grass / Weed Blade	Tri-Cut Grass / Weed Blade	Metal Grass / Weed Blade	Metal Brush / Clearing Blades
Support Handle, with or without barrier bar	U-handle or support handle with barrier bar		U-handle*
Shield with cut-off knife	Shield without cut-off knife.		
Harness	Harness		
Upper plate/flat washer	Upper / Lower blade plates		
Hex nut	Hex nut		
New cotter pin	New cotter pin		

*ANSI and UL standards require brushcutters be equipped with a barrier bar or restrictive harness. U-handle ensures a higher safety factor.

WARNING

Do Not install blades on GT (Curved Shaft) model trimmers.

- Use only ECHO approved parts. Failure to use the correct parts can cause the blade to fly off. Serious injury to the operator and/or bystanders can occur.
- Arbor diameter of upper blade plate must match arbor diameter of blades.
- For barrier bar or U-handle, follow instructions supplied with either blade conversion kit or U-handle kit, and verify blade is secured properly.
- A new cotter pin is required each time a blade is installed.
- Shoulder harnesses may be used on all trimmers and brushcutters to reduce operator fatigue. Brushcutters over 7.5 kg (16.5 lbs.) dry weight (without fuel) and U-handle brushcutters require a double shoulder harness.

Note: The barrier bar is used to restrict rearward movement of the unit. The barrier bar is not a handle and should not be gripped when using or carrying the unit.

Blade Selection:

NOTICE

Not all blades are compatible with all trimmers. Visit www.echousa.com or www.shindaiwa-usa.com to find compatible blades.

! WARNING

The type of blade used *MUST* be matched to the type and size of material cut. An improper or dull blade can cause serious personal injury. Blades *MUST* be sharp. Dull blades increase the chance of kick-out and injury to yourself and bystanders. Never use an edging blade, circular saw blade, or any other type of unapproved blade.

3-Tooth Grass/Weed Blades may be used wherever the nylon line head is used. DO NOT use this blade for heavy weeds or brush.

8-Tooth Weed/Grass Blade is designed for grass, garden debris and thick weeds up to 19 mm (0.75 in.) diameter. DO NOT use this blade for brush or heavy woody growth.

80-Tooth Brush Blade is designed for cutting brush and woody growth up to 13 mm (0.5 in.) diameter.

22-Tooth Clearing Blade is designed for dense thickets and saplings up to 64 mm (2.5 in.) diameter.

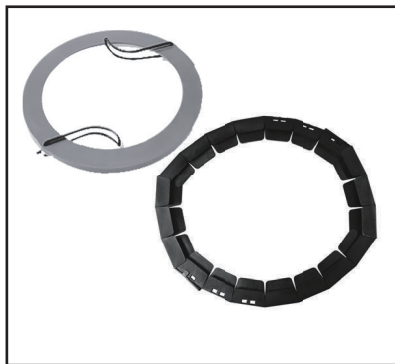
! WARNING

A trimmer/brushcutter with a metal blade can cause serious injuries if handled improperly.

Always use extreme care when carrying or handling the equipment to avoid contact with the cutting edges of the blade. Use the optional blade cover when unit is not in use.

Keep blades in protective packaging until ready to install. Store blades safely after removal to prevent injury from accidental contact.

Use blade protectors to protect blade teeth during unit transportation.



For hedge trimmers:

! WARNING

Always check hedges and bushes for foreign objects before trimming. Articulating Hedge Trimmer Adjusting Cutting Angle:

! WARNING

Never adjust cutting assembly with battery installed.

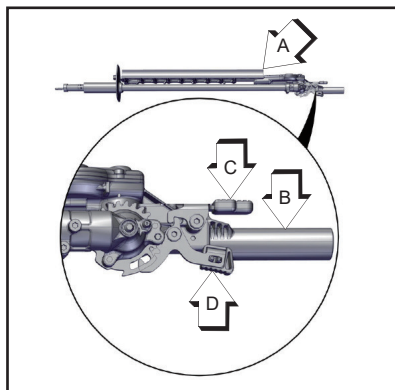
! WARNING

Hedge Trimmer blades are sharp. Always wear gloves when adjusting cutting assembly.

! WARNING

DO NOT stand hedge trimmer on end when adjusting cutting angle, otherwise serious injury may result.

1. Place unit on a flat surface with blade guard (A) facing up. Assure stop switch is in the "STOP" position.
2. Grab blade adjustment handle (B) and compress blade lock levers (C) and (D) together. Rotate blade to desired position. Release the levers to lock the blade.

**! WARNING**

Gear case assembly becomes HOT during use. Always grip assembly at blade-adjustment handle when making cutting angle adjustments, otherwise serious injury may result.

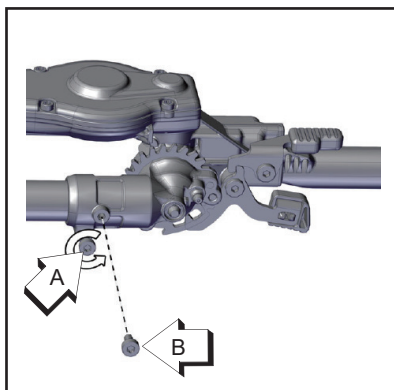
NOTICE

Always install the blade cover for storage or transportation.

Rotate Cutter Assembly:

Always use the unit from the right-hand side of your body – NEVER from the left side. Rotate cutter assembly 180° on drive shaft in order to avoid cutting directly above your head.

1. Loosen gear case clamping screw (A) and remove gear case locating screw (B).
2. Rotate cutter assembly 180° on drive shaft until locating hole in drive shaft is visible through locating hole in gear case.
3. Install gear case locating screw (B), and securely tighten all hardware.



WARNING

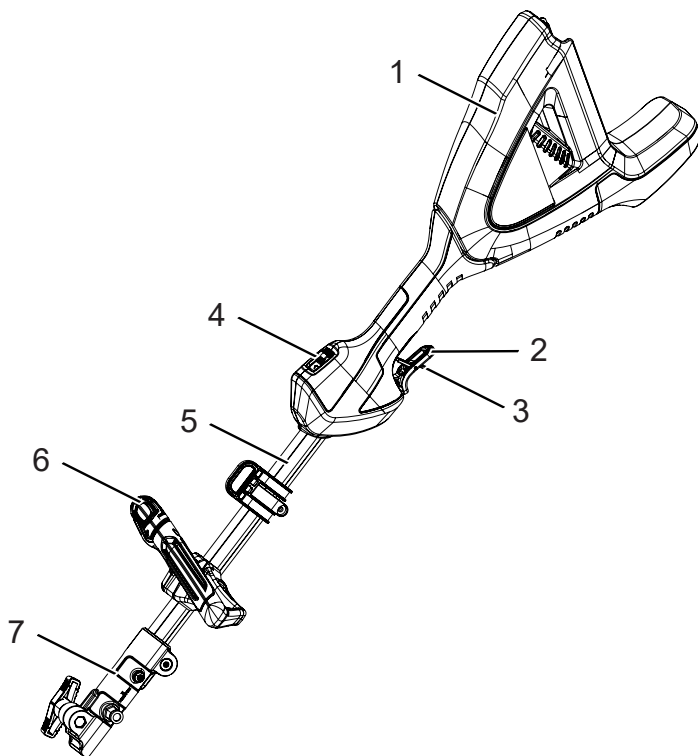
Hedge Trimmer blades are very sharp. Wear gloves to protect hands when rotating cutter assembly or serious personal injury may result.

WARNING

During operation, the complete unit, especially the drive shaft housing and gear case may become too hot to touch. Avoid contact when rotating cutter assembly.

DESCRIPTION

Locate the safety label(s) on your unit. Make sure the label(s) is legible and that you understand and follow the instructions on it. If a label cannot be read, a new one can be ordered from your ECHO dealer. Safety label is for example only. Your label may appear slightly different.



1. Power Head
2. Power switch
3. Lock-off lever switch
4. Speed switch
5. Upper shaft
6. Support handle
7. Coupler

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 Power Head With Upper Drive Shaft Assembly
- 1 Lower Drive Shaft Trimmer Attachment*
- 1 Support Handle Assembly
- 1 Operator's Manual
- 1 Battery*
- 1 Charger*

*Not all units include battery, charger, or trimmer attachment.

NOTICE

For a complete list of compatible batteries for this and all eFORCE® tools, scan this code or visit <https://www.echo-usa.com/battery-information>



ASSEMBLY

WARNING

Remove the battery from the machine before installation.

WARNING

Do not use accessories that are not recommended for this machine.

Unpack the Machine

WARNING

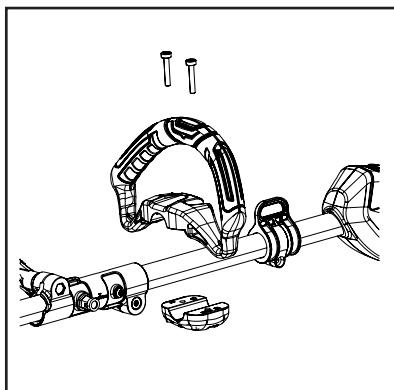
Make sure that you correctly assemble the machine before use.

WARNING

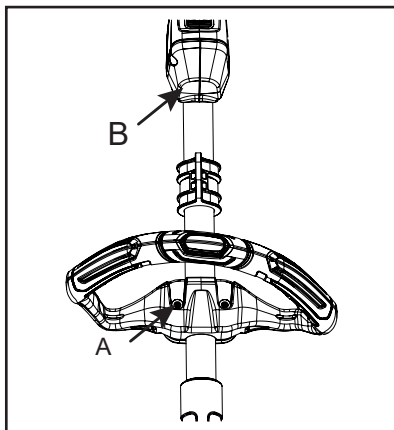
- If the parts are damaged, do not use the machine.
 - If you do not have all the parts, do not operate the machine.
 - If the parts are damaged or missing, speak to the service center.
-
1. Open the package.
 2. Read the documentation in the box.
 3. Remove all the unassembled parts from the box.
 4. Remove the machine from the box.
 5. Discard the box and package in compliance with local regulations.

Attach the Support Handle

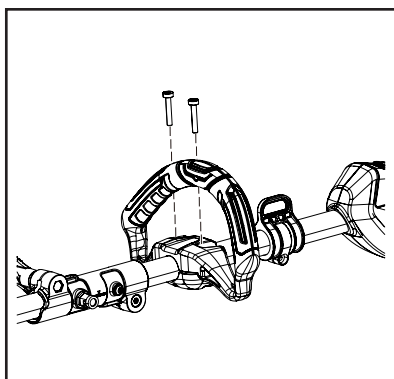
1. Remove the screws from the handle.



2. Attach the support handle and lower clamp on the shaft.
3. Put screw holes (A) on the support handle towards the rear handle (B).
4. Set the support handle in the most comfortable in use position.



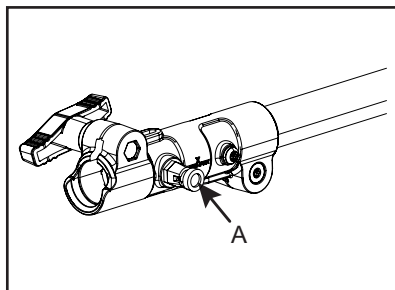
5. Tighten the screws.



Power Head Shaft to Lower Shaft Assembly

1. Set Power Head/Shaft Assembly on a level surface.
2. Pull locator pin (A) out, and turn counterclockwise one-quarter turn to lock-out position.
3. Remove storage hook and cap from attachment drive shaft.

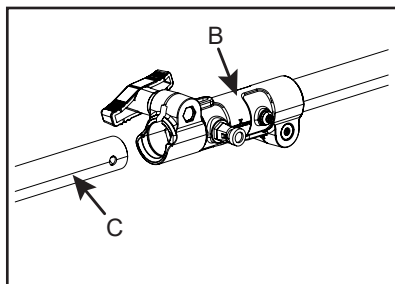
Note: Your coupler may appear different than coupler shown.



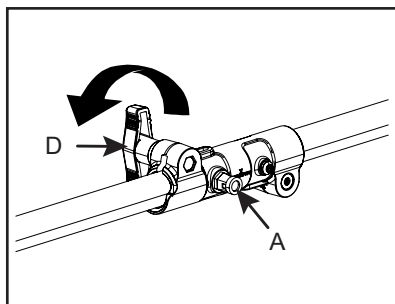
4. Carefully fit attachment drive shaft assembly into coupler (B). Rotate shaft (C) to make sure inner lower drive shaft engages square upper drive shaft socket.

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

Note: Some models have an assembly line decal to assist in assembly.



5. Rotate locator pin (A) onequarter turn clockwise to engage lower shaft hole. Make sure locator pin is fully engaged by rotating lower snap 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).



Battery Charging

Note: See separate operator's manuals packaged with battery and charger.

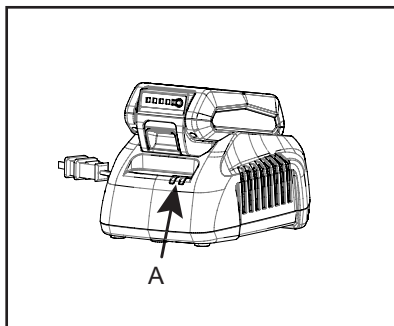
WARNING

- Use only with ECHO eFORCE® 56V battery series batteries and chargers.
- Keep charger and battery away from damp conditions and all liquids.
- Do not operate the charger on an easily combustible surface (e.g. paper, textiles) or in an environment with a high risk of fire.
- Do not cover the charger. Covering the charger will prevent it from cooling.
- Do not operate the charger in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Charger can produce sparks which may ignite the dust or fumes - there is a risk of explosion.
- Connect the charger only to the mains of voltage and frequency specified on the rating plate.
- Connect the charger only to an easily accessible wall outlet.
- Never insert objects in the battery's or charger's cooling slots.
- Do not charge or use a defective, damaged or deformed battery and charger.
- Do not open, damage or drop the battery or the charger.
- Fluid may leak from the battery if it is damaged or not used properly; avoid contact with the skin. In the event of accidental contact, wash the affected areas of the skin with plenty of water and soap. If fluid gets in the eyes, do not rub. Rinse the eyes with plenty of water for at least 15 minutes. Also seek medical assistance.
- Never bridge (short circuit) the battery contacts or the charger's terminals with metallic objects.
- Protect from direct sunlight, heat and open flames and never throw battery into fire; there is a risk of explosion.
- In the event of smoke or fire in the charger, disconnect it from the wall outlet immediately.
- If the connecting cord is damaged, immediately disconnect the plug from the power supply to avoid the risk of electric shock.
- Do not expose battery to microwaves or high pressure.
- To reduce the risk of stumbling, position and mark the connecting cord in such a way that it cannot be damaged or endanger others.

NOTICE

The battery comes partially charged from the factory and needs to be fully charged before first use. Charge the battery when it no longer produces sufficient power to operate the unit or when battery lights indicate that the battery is low.

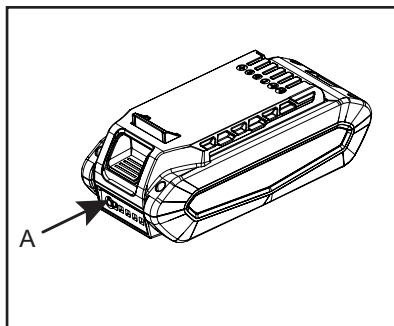
1. Plug charger AC cord in the wall outlet.
2. Align ridges on battery with grooves on charger, and slide battery into charger.
3. During normal charging, the charger LED (A) will blink GREEN.



NOTICE

If charger detects a problem, LED will blink RED. Remove battery from charger, clear obstructions from contacts and reinstall battery into charger. If battery is outside acceptable temperature range (0°C to 60°C, 32°F to 140°F) LED will remain RED.

4. When charging is complete, LED will remain GREEN. See battery manual for charging time.
5. Verify battery is fully charged. Remove battery from charger, press battery charge status button (B), and check LED display.
 - One green light indicates that the battery has 0-25% charge.
 - Two green lights indicate that the battery has 25-50% charge.
 - Three green lights indicate that the battery has 50-75% charge.
 - Four green lights indicate that the battery has 75-100% charge.
6. Unplug charger AC cord from the wall outlet.



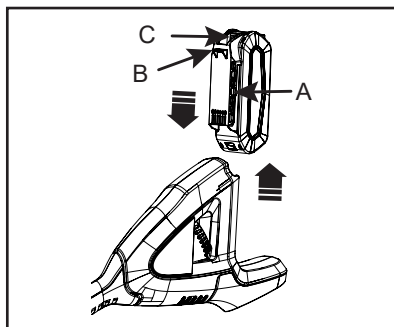
Install the Battery

WARNING

The attachment will operate when the battery is installed, the power indicator LED is lit, and the power switch and lock-off lever switch are engaged. Make sure the unit is properly positioned to prevent loss of control and possible serious injury. Keep movable parts of the attachment off the ground and away from objects that could become entangled or thrown.

Note: The battery comes partially charged from the factory and needs to be fully charged before first use.

1. Make sure power to unit is turned off.
2. Align ridges (A) on battery with grooves in power head. Slide battery into power head.
3. Assure the battery latch (B) snaps into place and battery is secure before beginning operation.



NOTICE

Assure battery latch is fully engaged before using unit.

Remove the Battery

1. To remove battery, depress battery latch release (C) slide battery out of power head.

OPERATION

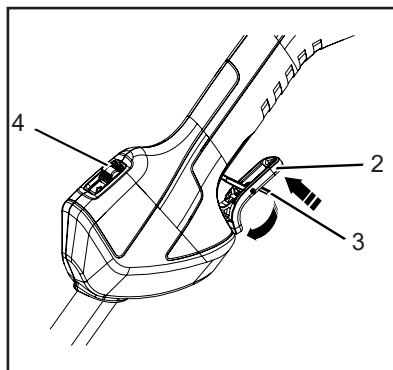
Starting Unit

WARNING

The attachment will operate when the battery is installed, and the power switch and lock-off lever switch are engaged. Make sure the product is properly positioned to prevent loss of control and possible serious injury.

Note: This unit has two operating modes: low and high. Use speed switch to switch between modes.

1. Set speed switch (4) to desired operating mode: tortoise for low, hare for high.
2. Move lock off lever switch (3) forward to free power switch (2)
3. Depress power switch to increase RPM.



Stop the Machine

1. Release the power switch to stop the machine.

Applications

WARNING

Always hold throttle handle with right hand and support handle with left hand, placing unit on right side of body.

WARNING

Do not install blades on GT (Curved Shaft) trimmers.

Operating Techniques - Nylon Line Head

Nylon line heads may be used for trimming, scything, edging, and scalping of grass and light weeds.

Trimming

Feed the spinning line into the material to be cut. Tilt the line head to one side to direct cutting debris away from you:

- Model SRM/DSRM/PAS/DPAS/SB/TX/C/T (Straight shaft, counterclockwise line head rotation) - Tilt the cutting head down on the right side while cutting to direct cutting debris away from operator. Feed the line gradually into the material you wish to cut, avoiding contact with fences or other barriers.
- GT models: Tilt cutting head to the left while cutting to direct debris away from the operator.

Scything

Scything - Swing the cutting head in a level arc, gradually feeding the line into the material being cut. Move forward with each arc to cut a swath. Width of cutting swath depends on arc. Use a larger arc for a wider swath, or a smaller arc for a narrow swath. Keep line head tilted to direct cutting debris forward or away from you.

Edging and Scalping

Both of these are done with the nylon line cutting head tilted at a steep angle. Scalping is removing top growth, leaving the earth bare. Edging is trimming the grass back where it has spread over a pavement or driveway. During both edging and scalping, hold the unit at a steep angle in a position where the debris, and any dislodged dirt and stone, will not come back towards you even if it ricochets off the hard surface.

General

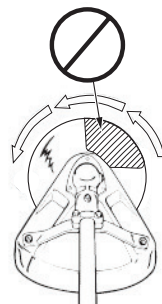
- Debris flows in direction of line head rotation. Change line head position to assure debris flow is directed away from operator.
- Keep cutting line away from wire fences to avoid entanglement.
- Operate trimmer only with cutting head below knee height.

Operating Techniques - Metal or Plastic Blade

Brushcutter blades may be used to cut and trim a wide variety of materials. Refer to the blade selection section for determining the correct blade for the application.

Scything (3, 8, and 80 tooth weed/grass, and brush blades)

- To cut large sections of field grass and weeds swing the cutting head in a level arc, gradually feeding the blade into the material being cut. Adjust throttle speed according to your work.
- Do not swing the main pipe with arms. Turn hips to swing the blade horizontally from right to left, and cut weeds on the left side of the blade.
- Do not scythe back and forth as the grass may scatter and kickback may occur easily.
- Tilt blade left by 5 to 10 degrees so that cut grasses will push left, making progress easier.
- Move forward with each arc to cut a swath.
- Width of cutting swath depends on arc. Use a larger arc for a wider swath, or a smaller arc for a narrow swath. Suggested cutting width is about 1.5 m (4.9 ft).
- When scything large brush up to 12.7 mm (0.5 in.) diameter from right to left, avoid cutting with highlighted section.



Reaction Forces

WARNING

- ♦ The cutting attachment will continue to rotate even after the throttle is released, maintain control of the unit until it has come to a complete stop.
- ♦ Blade thrust may occur when the spinning blade contacts an object that it does not immediately cut. Following proper cutting techniques will prevent blade thrust.
- ♦ Blade thrust can be violent enough to cause the unit and/or operator to be propelled in any direction, and possibly lose control of the unit.
- ♦ Blade thrust can occur without warning if the blade snags, stalls or binds.
- ♦ Blade thrust is more likely to occur in areas where it is difficult to see the material being cut.

Push or Pull - Kickout

During normal use, operating a brushcutter with a circular metal blade can produce sudden strong reaction forces that are difficult to control. Strong reaction forces can cause a loss of balance or loss of control of the equipment, resulting in serious injury to operator and bystanders.

Understanding what causes these reactive forces may help you to avoid them, and can help you to maintain control of the equipment if you experience a sudden reaction during cutting. Reactive forces occur when the force being applied by the cutting teeth of a blade meet resistance, and some of the cutting force is directed back toward the equipment. The greater the cutting force or the amount of resistance, the greater the reactive force.

Push and Pull Forces

Push and pull forces are reactive forces that push the equipment directly toward the operator, or that pull the equipment directly away from the operator. These forces are the result of cutting on the sides of the blade. The direction of the force depends on the side of the blade being used, and the direction of blade rotation at the point of contact. The reactive force is in the opposite direction of blade rotation at the contact point, regardless of where the contact is being made. These types of reactive forces are also called "Blade Thrust."

As shown in the illustration, a blade turning counterclockwise will cause the equipment to pull away from the operator if the point of cutting resistance is on

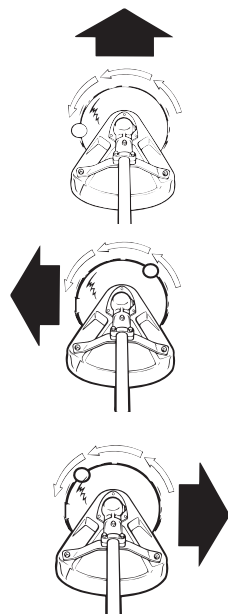


the left side of the blade. If the point of cutting resistance is on the right side of the blade, the equipment will push back toward the operator. In both examples, the reactive force is in the opposite direction of blade rotation at the contact point where resistance occurs.

Kickout

Kickout is also a reactive force caused by resistance to cutting, but the direction of blade thrust is lateral (to the left or right of the blade), instead of forward or back toward the operator. In most cases, Push, Pull, and Kickout can be reduced or eliminated by:

- Using the correct blade for the cutting job
- Using properly sharpened blades
- Applying consistent, even force to the blade during the cut
- Avoiding obstacles and ground hazards
- Using extra care when cutting harder materials such as extremely dry brush, saplings, and small trees
- Cutting from a stable, secure position



Blade Cutting Problems

Binding - Blades may bind in the cut if dull or forced. Binding can damage blade, and result in blade breakage or injury from fragments and flying debris. If a blade binds in a cut, don't try to get it out by applying "up and down" force to pry the cut open. Applying prying force to the blade can bend the blade, and result in blade failure and injury.



To free a blade that is bound in the cut, stop the unit, and support the trimmer or brushcutter to keep stress off the blade. Push the tree away from the entry point of the cut to open the cut, and pull the blade directly away from the cut in a straight-line motion. Use caution when releasing the tree to avoid being struck by spring-back or falling.

Inspect the blade for damage before proceeding. Sharpen teeth if dull, or replace blade if cracked, bent, missing teeth, or otherwise damaged.

To prevent binding:

- Keep blades sharp
- Avoid excessive pressure during cuts
- Don't exceed cutting capacity of blade
- Don't use blades with damaged or missing cutting teeth
- Don't rock blades in cut

MAINTENANCE

WARNING

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

WARNING

Operating a poorly maintained unit can result in serious injuries to operator or bystanders. Always follow all maintenance instructions as written, otherwise serious personal injury can result.

Your 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 a Servicing Dealer for maintenance. To help you decide whether you want to DO-IT-YOURSELF or have the Dealer do it, each maintenance task has been graded. If the task is not listed, see your 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.

Level 3 = See your dealer.

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

or

[HERE https://www.shindaiwa-usa.com/you-can.aspx](https://www.shindaiwa-usa.com/you-can.aspx)

Maintenance Intervals

COMPONENT OR SYSTEM	MAINTENANCE PROCEDURE	Skill Level
Daily Or Before Use		1
Battery / Battery Compartment	Inspect / Clean / Charge	1
Screws / Nuts / Bolts	Inspect / Tighten / Replace	1
Drive Shaft	Grease ¹	1

MAINTENANCE PROCEDURE NOTES:

¹ Apply lithium based grease every 25 hours of use.

WARNING

If not maintained properly, the product may pose a serious risk to physical health.

NOTICE

If not maintained properly, the product's performance may deteriorate. Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance. If you continuously use vegetable based chain oil, inspect and do maintenance often. When you find anything wrong, ask your ECHO dealer for repair.

Maintenance and Care

WARNING

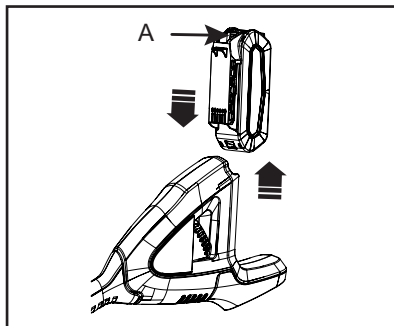
Remove battery before performing maintenance procedures.

Cleaning battery and battery compartment

! WARNING

Risk of electric shock or fire. Do not use conducting materials to clean battery or battery compartment. Otherwise serious personal injury may result.

1. Release power switch and allow trimmer head to stop.
2. Depress battery latch release (A) and slide battery out of power head.
3. Use compressed air or a soft bristle brush to remove debris from battery and battery compartment.



Nylon Line Replacement

! CAUTION

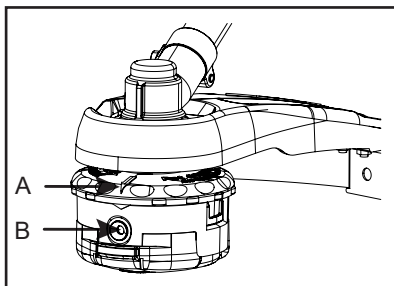
Wear gloves or personal injury may result:

- ***Cut-off knife is sharp.***
- ***Gearcase and surrounding area may be hot.***

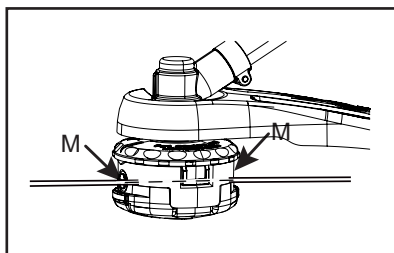
! WARNING

Never use wire or wire-rope that can break off and become a dangerous "projectile". Serious injury can occur.

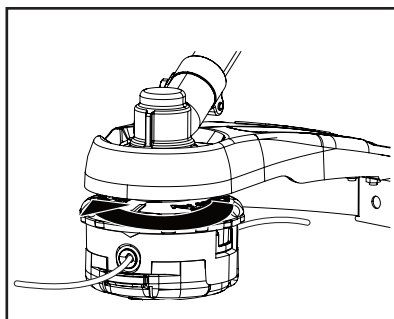
1. Cut one piece of line to recommended length.
2.0 mm (0.080 in.) diameter 6 m (20 ft.).
2.4 mm (0.095 in.) diameter 6 m (20 ft.).
2. Align arrows (A) on top of knob with openings in eyelets (B).



3. Insert one end of trimmer line into an eyelet (B), and push line equal distance through trimmer head.



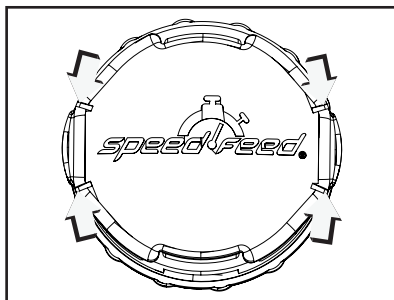
4. Hold trimmer head while turning knob clockwise to wind line onto spool until about 13 cm (5 in.) of each line remains exposed.



Trimmer head is now fully loaded and ready for operation.

NOTICE

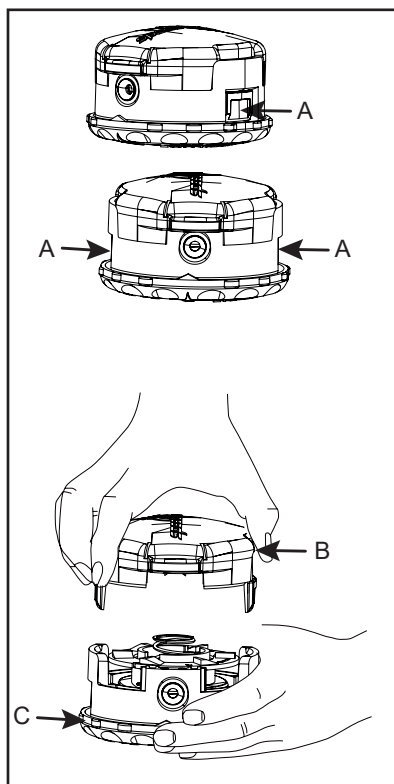
When the wear indicators located at the bottom of the Speed-Feed® head are worn smooth, or if holes appear, replacement of the cover or the entire Speed-Feed® head is required.



Nylon Line Head Disassembly Instructions

Note: For normal use, Speed-Feed® head disassembly is not necessary. However, if circumstances require disassembly, follow these instructions.

1. Press top of locking tabs (A) on both sides of Speed-Feed® head to release cover (B) from eyelet carrier (C).



2. Remove cover from eyelet carrier.

Sharpening Metal Blades

WARNING

Metal blades are very sharp and can cause severe injuries, even if unit is off and blades are not moving. Avoid contact with blades. Wear gloves to protect hands.

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

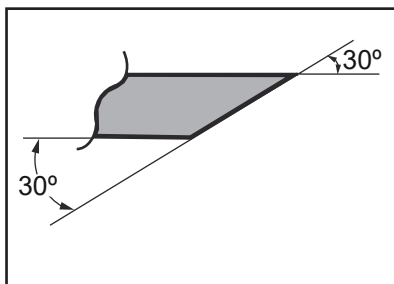
Before sharpening, **CLOSELY** inspect blade for cracks (look at the bottom of each tooth and the center mounting hole closely), missing teeth and bending. If **ANY** of these problems are discovered, replace the blade.



When sharpening a blade, always remove the same amount of materials from each tooth to maintain balance.

A blade that is not balanced will cause unsafe handling due to vibration and can result in blade failure.

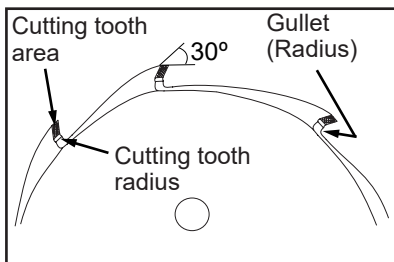
1. File each tooth at a 30° angle a specific number of times, e.g., four strokes per tooth. Work your way around the blade until all teeth are sharp.
2. **DO NOT** file the 'gullet' (radius) of the tooth with the flat file. The radius must remain. A sharp corner will lead to a crack and blade failure.



NOTICE

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

3. File each tooth at a 30° angle a specific number of times, e.g., four strokes per tooth. Work your way around the blade until all teeth are sharp.



TROUBLE SHOOTING

Problem	Possible Cause	Solution
The machine does not start when you push the power switch.	No electrical contact between the machine and the battery.	1. Remove battery. 2. Check contact and install the battery again.
	The battery is depleted.	Charge the battery.
	The lock-off lever switch and power switch are not pushed at the same time.	1. Push the lock-off lever switch and hold it. 2. Pull the power switch to start the machine.
The machine stops when you cut.	The battery or machine is too hot.	1. Cool the battery until its function returns to normal. 2. Cool the machine for approximately 10 minutes.
	The battery is disconnected from the tool.	Install the battery again.
	The battery is depleted.	Charge the battery.
Red Charger light flashes or does not light up.	Plug not connected to power outlet.	Plug in charger.
	Battery pack not installed properly.	Check the battery installation.
	Obstructed connection.	Reinstall battery after removing obstructions.
	Fault in the charger.	Consult your dealer.
	Fault in the battery pack.	Consult your dealer.
Unit will not turn on	Battery pack not installed properly.	Check battery installation.
Unit does not run when turned on	Battery pack discharged.	Charge battery.
	Battery pack outside acceptable temperature range.	Remove the battery and allow to cool.
Running time is too short.	Battery pack outside acceptable temperature range.	Remove battery and allow to cool.
	Unit electronics too hot.	Turn unit off and allow to cool.
	Battery pack discharged.	Charge the battery.

STORAGE

Storage After Use



WARNING

Do not store in an enclosure where combustible fumes may accumulate. Fire may result.

When storing the product for long periods of time, ensure that the following preparations for storage are carried out.

Powerhead

Do not store your unit without performing protective storage maintenance which includes the following:

- Turn power to unit off.
- Remove battery.
- Remove accumulation of dirt and debris from exterior of unit.
- Tighten all screws and nuts.
- Cover battery compartment, battery and charger.
- Store unit in a dry, dust-free place, out of the reach of children.

Battery

- Remove battery.
- Store in a dry, dust-free place, out of the reach of children.
- Store in temperatures between 32°F (0°C) and 113°F (45°C).
- If battery is stored for longer than six months, charge it to 100% capacity.

Charger

- Remove battery from charger.
- Disconnect charger from power supply.
- Store in a dry, dust-free place, out of the reach of children.

Disposal



Major plastic parts making up the product have codes showing their materials. The codes refer to the following materials; dispose of those plastic parts in accordance with local regulations.

Materials

Mark	Material
>PA6-GF<	Nylon 6 - Glass fiber
>PP-GF<	Polypropylene - Glass fiber
>PE-HD<	Polyethylene
>PP<	Polypropylene

- Battery contains lithium. Dispose of only at a designated collection point.
- Lithium-ion batteries must be disposed of properly.
- Please contact your dealer in case you do not know how to dispose of or recycle waste plastic parts.

SPECIFICATIONS

MODEL	DPAS-2100	
	Grass trimmer	Power head only
Length	1573 mm (61.93 in.)	872 mm (34 in.)
Width	290 mm (11.42 in.)	229 mm (9 in.)
Height	178 mm (7.01 in.)	229 mm (9 in.)
Weight (without battery)	3.83 kg (8.45 lbs.)	2.55 kg (5.62lbs)
Weight (with battery)	4.85 kg (10.7 lbs.)	3.6kg (7.94)
Operating Rod	25.0 mm aluminum Tube	
Rotating Direction	Counterclockwise; viewed from top	/
Cutter Head	Speed-Feed® Nylon line head	/
Handle	Front - loop, Rear handle	
Type	Cordless, battery powered	
Motor	56V	
No load speed	6100/5900 \pm 10% RPM	11500 \pm 10% RPM
Cutting line diameter	2.4 mm (0.095 in.)	/
Cutting path diameter	406 mm (16 in.) / 356 mm (14 in.)	/
Feed Type	Bump Feed	/
Battery model	ECHO eFORCE® 56V battery series batteries	
Type	Li-Ion	
Voltage	56 (rated 50.4)	
Charger type	CCCV	
Charger input voltage	AC 120	
Charger model	ECHO eFORCE® 56V battery series charger	
Charger time	See Battery Operator's Manual	

DPAS-2100 spindle ratings:

Attachment No.	Typical speed of the spindle (RPM)	Maximum speed of the spindle (RPM)
99944200540	5800 \pm 10%	10000
99944200545	4800 \pm 10%	10000
99944200615	9000 \pm 10%	10000
99944200502	6200 \pm 10%	10000

ECHO Optional Attachments

WARNING

The following ECHO Pro Attachment Series attachments have been verified by ECHO to be compatible for use with this powerhead. Separately, the the listed Compliant attachments have been verified by a NRTL (National Recognized Test Lab) to comply with the applicable standards. The attachments listed that are not compliant have still undergone significant testing to ensure compatibility with this powerhead. Please be sure to read and understand all safety and operation in this Operator's Manual for all attachments listed. Serious injury may result from the use of non ECHO 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 these units.

Compatible Attachments	
Description	Model Number
DPAS-2100 Speed Feed® Trimmer	99944200502
Speed-Feed® Trimmer	99944200540
Rapid Loader™ Curved Shaft Trimmer	99944200615
Pro-Torque Trimmer	99944200545
Power Pruner™	99944200532
Pro Paddle	99944200620
Pro Sweep	99944200553
Tiller/Cultivator	99944200513
3' Extension ¹	99944200536
Power Blower	99944200490
Brush Cutter	99944200601

Curved Shaft Edger	99944200470
Straight Shaft Edger	99944200475
Hedge Trimmer	99944200486
Mid Reach Hedge Trimmer	99944200640
Articulating Hedge Trimmer	99944200596
1. For use with: Articulating Hedge Trimmer, Hedge Trimmer, Mid Reach Hedge Trimmer and Power Pruner™ Attachments ONLY.	

Compliant Attachments		
Description	Model Number	Applicable Standard
DPAS-2100 Speed Feed® Trimmer	99944200502	UL Std. 62841-4-4; CAN/CSA Std. C22.2 No. 62841-4-4
Speed-Feed® Trimmer	99944200540	UL Std. 62841-4-4; CAN/CSA Std. C22.2 No. 62841-4-4
Rapid Loader™ Curved Shaft Trimmer	99944200615	UL Std. 62841-4-4; CAN/CSA Std. C22.2 No. 62841-4-4
Pro-Torque Trimmer	99944200545	UL Std. 62841-4-4; CAN/CSA Std. C22.2 No. 62841-4-4
Power Pruner™	99944200532	UL Std. 82; CAN/CSA Std. C22.2 No. 147-15
Pro Paddle	99944200620	UL Std. 82; CAN/CSA Std. C22.2 No. 147-15
Pro Sweep	99944200553	UL Std. 82; CAN/CSA Std. C22.2 No. 147-15
Tiller/Cultivator	99944200513	UL Std. 82; CAN/CSA Std. C22.2 No. 147-15
3' Extension ²	99944200536	UL Std. 82; CAN/CSA Std. C22.2 No. 147-15
Power Blower	99944200490	UL Std. 1017; CAN/CSA Std. C22.2 No. 243-17
2. For use with: Power Pruner™ attachments only		

Other Pro Attachment Series attachments approved by ECHO for this powerhead may become available after the publication of this operator's manual. See www.echo-usa.com or call 1-800-432-ECHO for the current list of approved attachments for this powerhead.

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, Incorporated.

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 Incorporated, 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 las 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 Escriba 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	
Primary use of tool: <input type="checkbox"/> Professional <input type="checkbox"/> Homeowner <input type="checkbox"/> Rental Equip. <input type="checkbox"/> Aquiler. <input type="checkbox"/> Professional <input type="checkbox"/> Dueño de casa <input type="checkbox"/> Alquiler <input type="checkbox"/> Professional <input type="checkbox"/> Residential <input type="checkbox"/> Location <input type="checkbox"/> Location	
Do you wish to receive periodic ECHO product information and special offers by e-mail? <input type="checkbox"/> Yes <input type="checkbox"/> No	
¿Desea usted recibir información periódica y ofertas especiales por correo electrónico sobre el producto ECHO? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Souhaitez-vous recevoir périodiquement de l'information sur les produits ECHO et les offres spéciales par courrier électronique ? <input type="checkbox"/> Oui <input type="checkbox"/> Non	
Did you visit the ECHO website before purchasing your product? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Visité usted la página web ECHO antes de comprar su producto? <input type="checkbox"/> Si <input type="checkbox"/> No	
Avez-vous visité le site d'ECHO avant de procurer votre produit? <input type="checkbox"/> Oui <input type="checkbox"/> Non	
What factor(s) most influenced your purchase? <input type="checkbox"/> Performance <input type="checkbox"/> Price <input type="checkbox"/> Dealer <input type="checkbox"/> Reliability <input type="checkbox"/> Prior Experience <input type="checkbox"/> Quality <input type="checkbox"/> Friend/Family <input type="checkbox"/> Brand <input type="checkbox"/> Warranty	
¿Qué factor(es) influenció más en su compra? <input type="checkbox"/> Funcionamiento <input type="checkbox"/> Precio <input type="checkbox"/> Distribuidor <input type="checkbox"/> Confiabilidad <input type="checkbox"/> Experiencia Anterior <input type="checkbox"/> Calidad <input type="checkbox"/> Amigo/Familia <input type="checkbox"/> Marca <input type="checkbox"/> Garantía	
Quel facteur (facteurs) vous a influencé le plus? <input type="checkbox"/> Performance <input type="checkbox"/> Prix <input type="checkbox"/> Marchand <input type="checkbox"/> Fiabilité <input type="checkbox"/> Expérience <input type="checkbox"/> Qualité <input type="checkbox"/> Ami/Famille <input type="checkbox"/> Marque <input type="checkbox"/> Garantie	
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 : Número del Modelo : No. de modèle	
Serial Number : Número 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 ownership in the event of loss. El registrar su compra nos permite estar en contacto con usted en caso de cualquier evento como el aviso de tiempo de servicio o la revocación del producto y verificación de propiedad en caso de robo o pérdida. L'enregistrement de votre achat nous permettra de vous contacter dans le cas improbable de modifications des instructions d'utilisation ou de rappel du produit que vous êtes le propriétaire en cas de tel ou tel de perte.

ECHO INC., 400 Oakwood Rd., Lake Zurich, IL 60047
1.800.432.ECHO WWW.ECHO-USA.COM X7572720206 02-2012



WARRANTY

Limited Warranty Statement for ECHO 56 Volt Handheld Products and Walk Behind Mowers sold in USA and Canada

ECHO Incorporated warrants to the original retail purchaser that this ECHO brand 56 Volt outdoor product is free from defects in material and workmanship and agrees to repair or replace, at ECHO Incorporated's discretion, any defective product free of charge within these time periods from the date of purchase:

■ If the product is for homeowner use:

- Units and Bare Tool – 5 Years
- Battery or charger – 2 years

■ If the product is for commercial use:

- Units and Bare Tool – 2 Years
- Battery or charger – 2 years

■ If the product is for rental use: 90 days for all units, batteries, and chargers.

- Cutting attachments such as, but not limited to, bars, chains, sprockets, blades, tines, belts, PowerBroom™ and nylon trimmer heads for homeowner or non-income producing use will be covered for failures due to defects in material or workmanship for a period of 60 days from original product purchase date and 30 days for commercial / rental use. Any misuse from contact with concrete, rocks, or other structures is not covered by this warranty.

This warranty extends to the original retail purchaser only and commences on the date of the original retail purchase.

Any part of this product found in the reasonable judgment of ECHO Incorporated, to be defective in material or workmanship will be repaired or replaced without charge for parts and labor by an authorized ECHO dealer. Units, repair parts and accessories replaced under this warranty are warranted only for the balance of the original warranty period.

The product, including any defective part, must be returned to an authorized ECHO dealer within the warranty period. The expense of delivering the product to the service center for warranty work and the expense of returning it back to the owner after repair or replacement will be paid by the owner. ECHO Incorporated's, responsibility in respect to claims is limited to making the required repairs or replacements and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any ECHO brand

56 Volt outdoor product. Proof of purchase will be required by the dealer to substantiate any warranty claim. All warranty work must be performed by an authorized ECHO dealer.

This warranty does not cover any units, battery or charger that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the Operator's Manual. This warranty does not cover normal deterioration due to the use or exposure, and any repairs made necessary by normal wear, improper maintenance, improper lubrication, improper storage, dirt, abrasives, impact, moisture, water, rain, snow, rust, corrosion, varnish, or other similar conditions.

This warranty does not cover damage to chargers or batteries by improper charging voltage and batteries that have been exposed to temperatures beyond those specified in the Operator's Manual, batteries that have not been properly charged or batteries that have reached their useful life.

This warranty does not apply to any damage to the product that is the result of improper maintenance or to any product that has been altered or modified. The warranty does not extend to repairs made necessary by normal wear or by the use of parts or accessories which are either incompatible with the ECHO brand 56 Volt outdoor product or adversely affect its operation, performance, or durability. In addition, this warranty does not cover wear to normal items such as, but not limited to:

Wear items – Bump Knobs, Outer Spools, Cutting Lines, Inner Reels, Felt Washers, Hitch Pins, Mulching Blades, Blower Fans, Blower and Vacuum Tubes, Vacuum Bag and Straps, Guide Bars, Saw Chains, Grass Catch Bag, Hedge Trimmer Blades, and Wheels

ECHO Incorporated, reserves the right to change or improve the design of this product without assuming any obligation to modify any product previously manufactured.

All implied warranties are limited in duration to the stated warranty period. Accordingly, any such implied warranties including merchantability, fitness for a particular purpose, or otherwise, are disclaimed in their entirety after the expiration of the appropriate five-year, two-year, one-year, 90-day, 60-day, or 30-day warranty period. ECHO Incorporated's obligation under this warranty is strictly and exclusively limited to the repair or replacement of defective parts. ECHO Incorporated, does not assume or authorize anyone to assume for them any other obligation. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. ECHO Incorporated, assumes no responsibility for incidental, consequential, or other damages including, but not limited to, expense of returning the product to an

authorized dealer for ECHO brand 56 Volt outdoor products and expense of delivering it back to the owner, mechanic's travel time, telephone charges, rental of a like product during the time warranty service is being performed, travel, loss or damage to personal property, loss of revenue, loss of use of the product, loss of time, or inconvenience. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty applies to all ECHO brand 56 Volt outdoor products manufactured by or for ECHO Incorporated, and sold in the United States and Canada.

To locate your nearest authorized ECHO dealer, visit www.ECHO-usa.com or dial 1-800-432-ECHO (3246).

NOTES

437PAS000001 - 437PAS9999999

438PAS000001 - 438PAS9999999



ECHO INCORPORATED

400 Oakwood Road

Lake Zurich, IL 60047

www.echo-usa.com