

Operator's Manual PE-225 POWER EDGER

WARNING

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

WARNING



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

TABLE OF CONTENTS

Table of Contents	2
Introduction	. 3
Servicing Information	
Parts and Serial Number	4
Service	
ECHO Consumer Product Support	4
Product Registration	
Additional Literature	
Safety	
Manual Safety Symbols and Important Information	
International Symbols	
Personal Condition and Safety Equipment	7
Equipment	
Emission Control (Exhaust & Evaporative)	
CARB and EPA Emissions Control Information	
Description	
Contents	
Assembly	
Support Handle	
Operation	
Fuel	
Starting Cold Engine	
Starting Warm Engine	
Stopping Engine	
Edger Operation Techniques	
Maintenance	
Skill Levels	
Maintenance Intervals	
Air Filter	
Fuel Filter 2	
Spark Plug	
Cooling System	
Exhaust System	
Carburetor Adjustment	
Lubrication	
Edger Blade Replacement	
Troubleshooting	
Storage	
Long Term Storage (Over 30 Days)	
Specifications	
Product Registration	12

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 codes 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

OR



3



https://www.shindaiwa-usa.com/manuals

SERVICING INFORMATION

Parts and 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 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.

PE-225 SAFETY

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.

A 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.

A 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

Symbol	Description	Symbol	Description
	Warning, See Operator's Manual	Ι	Carburetor Adjustment - High Speed Mixture
	Wear Eye, Ear and Head Protection	T	Carburetor Adjustment - Idle Speed
	Wear Hand and Foot Protection	L	Carburetor Adjustment - Low Speed Mixture
A	Safety/Alert	STOP	STOP Switch
	Hot Surface	+6	Fuel and Oil Mixture
		Keep Bystand	O KICKOUT ders At Least 15 m ft.) Away
		Beware Thrown Obj	ects Wear Eye Protection
	DO NOT Allow Flames or Sparks Near Fuel	Ignition ON OFF	Ignition ON / OFF
3	DO NOT Smoke Near Fuel	•	Purge Bulb

PE-225 SAFETY

Symbol	Description	Symbol	Description
	Choke Control "RUN" Position (Choke Open)	1	Choke Control "COLD START" Position (Choke Closed)
	Keep Feet Away From Blade		Rotating Cutting Attachment
Ism(5)		Keep Bystan Away	ders and Helpers 15 m (50 ft.)
	Thrown Objects		Direction of Blade
	DO NOT USE LINE HEADS - Blades Only		DO NOT USE BLADES - Line Heads Only

Note: Not all symbols will appear on your unit.



Personal Condition and Safety Equipment

WARNING

Cancer and Reproductive Harm www.P65Warnings.ca.gov

SAFETY PE-225

WARNING



The muffler or catalytic muffler and surrounding cover may become extremely hot. Always keep clear of exhaust and muffler area, otherwise serious personal injury might occur.



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 can 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 and Ear Protection

ECHO recommends wearing personal protective equipment whenever unit is used.

PE-225 SAFETY

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 WITH BARE FEET.

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 can 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.

SAFETY PE-225

Extended Operation and Extreme Conditions

CAUTION

Prolonged exposure to cold and/or vibration can result in injury. Read and follow all safety and operation instructions to minimize risk of injury. Failure to follow instructions can 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.

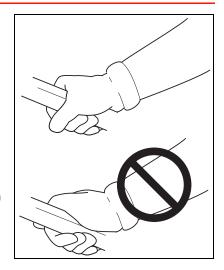
Repetitive Stress Injuries (RSI)

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.

PE-225 SAFETY

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.

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 can result.

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

Read Manuals

· Provide all users of this equipment with literature for instructions on safe operation.

SAFETY PE-225

Clear The Work Area

· Always clear the work area of foreign objects such as rocks, broken glass, nails, wire, or string, 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 15 m (50 ft) 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 engine 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 over reach.
- Keep cutting attachment below waist.
- Keep all body parts away from rotating cutting attachment.

Avoid Hot Surfaces

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





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 listed in this manual and safety manual.

 Check unit for loose or missing nuts, bolts, and screws. Tighten or replace as needed.

PE-225 SAFETY

 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.
- Check that support handle is 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 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.

WARNING

Periodically Check fuel system (fuel lines, vent, grommet, fuel tank, and fuel cap) for leaks especially if the unit is dropped. If damage or leaks are found, do not use unit, otherwise serious personal injury or property damage may occur. Have unit repaired by an authorized servicing dealer before using.

EMISSION CONTROL (EXHAUST & EVAPORATIVE)

CARB and EPA Emissions Control Information

The emission control system for the engine is EM (engine modification) and, if the second to last character of the Engine Family on the Emission Control

Information label (sample below) is "B", "C", "K", or "T", the emission control system is EM and TWC (3-way catalyst). The fuel tank/fuel EMISSION CONTROL INFORMATION ENGINE FAMILY: FERNS.0214EQ DISPLACEMENT: 21.2cc EMISSION COMPLIANCE PERIOD: SOHours THIS ENGINE MEETS 2013 U.S.EPA EXH/EVP & CALIFORNIA EXHVEVP EMISSION REGULATIONS FOR S.O.R.E. REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

YAMABIKO CORP. MMM/YYYY



line emission control system is EVAP (evaporative emissions). Evaporative emissions for California models are only applicable to fuel tanks and fuel feed lines.

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

EMISSION CONTROL INFORMATION

ENGINE FAMILY: CEHXS.0214KL DISPLACEMENT: 21.2cc EMISSION COMPLIANCE PERIOD: 300Hours THIS ENGINE MEETS 2012 U.S. EPA EXHVEVP & CALIFORNIA EXH/EVP EMISSION REGULATIONS FOR S.O.R.E. REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

YAMABIKO CORP. MMM/YYYY

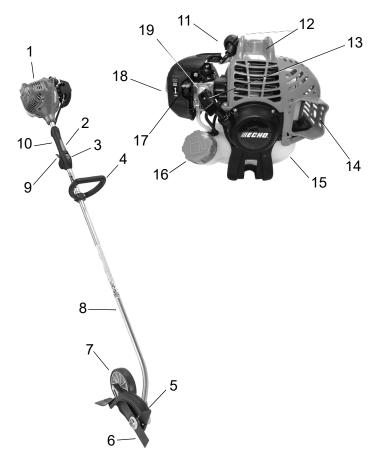


Product Emission Durability (Emission Compliance Period)

The 50 or 300 hour emission compliance period is the time span selected by the manufacturer certifying the engine emissions output meets applicable emissions regulations, provided that approved maintenance procedures are followed as listed in the Maintenance Section of this manual.

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. Safety label is for example only. Your label my appear slightly different.







- 1. Power Head
- 2. Throttle Trigger Lockout
- 3. Stop Switch
- 4. Support Handle For Left Hand
- 5. Debris Shield/flap
- 6. Blade
- 7. Wheel
- 8. Drive Shaft Assembly
- 9. Throttle Trigger
- 10. Throttle Handle For Right Hand
- 11. Spark Plug
- 12. Top Guard
- Recoil Starter Handle
- 14. Spark Arrestor Muffler Or Spark Arrestor Muffler With Catalyst
- 15. Fuel Tank
- 16. Fuel Tank Cap
- 17. Choke
- 18. Air Cleaner
- 19. Purge Bulb

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.

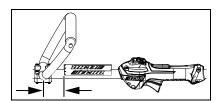
- 1 Power Head / Drive Shaft Assembly
- 1 Operator's Manual
- 1 Warranty Statement
- 2 Split Pins

ASSEMBLY

Support Handle

If necessary, position support handle for comfortable operation and securely tighten screws.

Note: Label shows minimum spacing for support handle location.



OPERATION PE-225

OPERATION

WARNING

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

WARNING

Engine exhaust IS HOT, and contains Carbon Monoxide (CO), a poison gas. Breathing CO can cause unconsciousness, serious injury, or death. Exhaust can cause serious burns. ALWAYS position unit so that exhaust is directed away from your face and body.

WARNING

Operation of this equipment may create sparks that can start fires around dry vegetation. This unit is equipped with a spark arrestor to prevent discharge of hot particles from the engine. Metal cutters can also create sparks if the cutter strikes rocks, metal, or other hard objects. Contact local fire authorities for laws or regulations regarding fire prevention requirements.

Fuel

WARNING

Diesel fuels and alternative fuels, such as E-15 (15% ethanol), E-85 (85% ethanol) or any fuels not meeting ECHO requirements are NOT approved for use in ECHO 2-stroke gasoline engines. Use of diesel or alternative fuels can cause performance problems, loss of power, overheating, fuel vapor lock, and unintended machine operation, including, but not limited to, improper clutch engagement. Diesel or alternative fuels can also cause premature deterioration of fuel lines, gaskets, carburetors and other engine components.



Fuel Requirements

Gasoline - Use fresh (purchased within the last 30 days from the pump) 89 Octane [R+M/2] (mid grade or higher) gasoline known to be good quality. Gasoline may contain up to 10% Ethanol (grain alcohol) or 15% MTBE (methyl tertiary-butyl ether). Gasoline containing methanol (wood alcohol) is **NOT** approved. Use of ECHO branded fuel is recommended to extend engine life in all air-cooled 2-stroke and 2/4-stroke hybrid engines.

Two Stroke Oil - A two-stroke engine oil, such as ECHO branded 2-stroke oils, meeting ISO-L-EGD (ISO/CD 13738) and J.A.S.O. FD Standards must be used. ECHO branded 2-stroke oils meet these standards. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD (ISO/CD 13738) and J.A.S.O. M345-FD certified oil will void the two-stroke engine warranty.

WARNING

2-Stroke engine oil contains petroleum distillates and other additives that may be harmful if swallowed. Heated oil can release vapors that can cause flash fire, or ignite with explosive force. Read and follow the oil manufacturer's instructions, and observe all safety warnings and precautions for handling flammable liquids. For more detailed safety and first aid information, visit www.echo-usa.com for a copy of the Material Safety Data Sheet.

- **◆ KEEP OUT OF REACH OF CHILDREN.**
- If swallowed, do not induce vomiting. CALL PHYSICIAN OR A POISON CONTROL CENTER IMMEDIATELY.
- WEAR SAFETY GLASSES when mixing or handling.
- AVOID repeated or prolonged skin contact.
- AVOID inhaling oil mists or vapors.

NOTICE

ECHO branded 2-stroke oils may be mixed at 50:1 ratio for application in all ECHO engines sold in the past regardless of ratio specified in those manuals.

Handling Fuel

A DANGER

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

- Use an approved fuel container. Mark fuel containers as containing 2-stroke mixture fuel.
- DO NOT smoke near fuel.
- DO NOT allow flames or sparks near fuel.
- ◆ Fuel tanks/cans may be under pressure. Always loosen fuel caps slowly allowing pressure to equalize.
- ◆ NEVER refuel a unit when the engine is HOT or RUNNING!
- DO NOT fill fuel tanks indoors. ALWAYS fill fuel tanks outdoors over bare ground.
- ◆ DO NOT overfill fuel tank. Wipe up spills immediately.
- Securely tighten fuel tank cap and close fuel container after refueling.
- ◆ Inspect for fuel leakage. If fuel leakage is found, do not start or operate unit until leakage is repaired.
- ◆ Move at least 3 m (10 ft.) from refueling location before starting the engine.

Gasoline vapor is heavier than air, and can travel along the ground to nearby sources of ignition such as electrical motors, pilot lights, and hot or running engines. Vapors ignited by an ignition source can flash back to the fuel container, resulting in an explosion, fire, serious or fatal injuries, and extensive property damage.

Mixing Instructions

NOTICE

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

- Fill an approved fuel container with half of the required amount of gasoline.
- 2. Add the proper amount of 2-stroke oil to gasoline.
- Close container and shake to 3. mix oil with gasoline.
- 4. Add remaining gasoline, close fuel container, and remix.

20

Fue	to Oil Mi	x – 50:1 F	Ratio
U	S	Ме	tric
Gas	Oil	Gas	Oil
gal.	fl.oz.	L	СС
1	2.6	5	100
2	5.2	10	200
5	13	25	500

NOTICE

Spilled fuel is a leading cause of hydrocarbon emissions. Some locations may require the use of automatic fuel shut-off containers to reduce fuel spillage.

Storage - Fuel storage laws vary by locality. Contact your local government for the laws affecting your area. As a precaution, store fuel in an approved, airtight container. Store in a well-ventilated, unoccupied building, away from sparks and flames.

 Empty the fuel tank prior to storing the unit. Return unused fuel to an approved fuel storage container.

NOTICE

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

Used oil and gasoline, and soiled towels are hazardous waste materials. Disposal laws vary by locality.

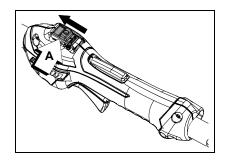
Starting Cold Engine

WARNING

The attachment will operate immediately when the engine starts, and could result in possible serious injury. Keep movable parts of the attachment away from objects that could become entangled or thrown, and surfaces that could cause loss of control.

1. Stop Switch

> Move stop switch button (A) forward, away from the STOP position.



21

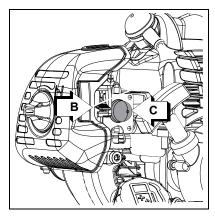
OPERATION PE-225

2. Choke

Move choke lever (B) to COLD START () position.

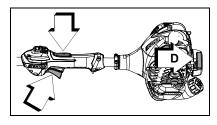
3. Purge Bulb

Pump purge bulb (C) until fuel is visible and flows freely in the clear fuel tank return line. Pump bulb an additional 4 or 5 times.



4. Recoil Starter

Lay the unit on a flat area and keep movable attachment parts clear of all obstacles. Firmly grasp throttle handle and throttle trigger lockout with left hand and fully depress throttle trigger to wide open position. Rapidly pull recoil starter handle/rope (D)



until engine fires (or maximum 2-3 pulls).

Choke 5.

After engine fires (or 2-3 pulls), move choke (B) to the RUN (↓ ↓) (open) position. Firmly grasp throttle handle and throttle trigger lockout with left hand and fully depress throttle trigger to wide open position. Pull starter handle/rope until engine starts and runs. Release throttle trigger and allow unit to warm up at idle for several minutes.

Note: If engine does not start with choke in "RUN" position after 2-3 pulls, repeat instructions 2 - 5.

6. Throttle Trigger

After engine warm-up, grip throttle handle and support handle. Depress the throttle trigger lockout, and gradually depress throttle trigger to increase engine RPM to operating speed.

Starting Warm Engine

The starting procedure is the same as Cold Start except DO NOT close the choke, and do not hold throttle trigger fully depressed.

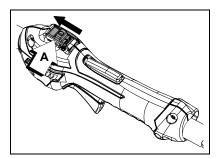
WARNING

The attachment should not move at idle, otherwise serious personal injury may result.

Note: If attachment moves, readjust carburetor according to "Carburetor Adjustment" instructions in this manual or see your ECHO Dealer.

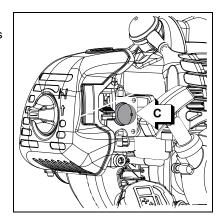
1. Stop Switch

Move stop switch button (A) forward away from the STOP position.



2. Purge Bulb

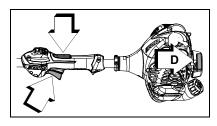
Pump purge bulb (C) until fuel is visible in the "Clear" fuel return line. Pump bulb an additional 4 or 5 times.



OPERATION PE-225

3. Recoil Starter

Lay the unit on a flat area and keep movable attachment parts clear of all obstacles. Firmly grip throttle handle and throttle trigger lockout with left hand. Rapidly pull recoil starter handle/rope (D) until engine fires.



Note: If engine does not start after 2-3 pulls, use Cold Start Procedure.

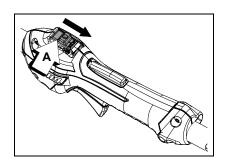
Stopping Engine

Throttle

Release throttle trigger and allow engine to return to idle before shutting off engine.

2. Stop Switch

> Move stop switch button (A) backward to STOP position.



A WARNING

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

Edger Operation Techniques

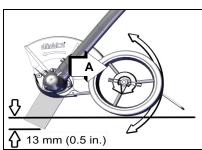
- Before edging, water the area to soften the ground to make edging easier.
- 2 Before edging, check the area and remove all obstacles and objects that could be thrown.
- 3. Plan to edge regularly to make it easier to keep a neat edge and to avoid having to make more than one pass.

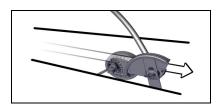
Note: Blade depth may have to be adjusted due to differences in height between the hard surface and the top of the grass.

WARNING

Never adjust blade height with engine running, otherwise serious personal injury may result.

- Loosen adjustment knob (A). Move wheel up to increase cutting depth, or down to decrease cutting depth. A depth of 0.5 in. (13 mm) is optimal. Tighten adjustment knob (A).
- 5. Before edging, plan your direction of travel so that the unit will always be positioned on your right side and so that you walk on a hard surface whenever possible.
- Position edger as shown. 6.





WARNING

Before edging, be sure to read and understand the entire Operator's Manual to avoid serious injury.

- When starting to edge, run the engine at full throttle, and lower the blade gently into the ground, being careful not to hit the concrete with the blade.
- Don't force the blade. Move only as quickly as the blade will allow. 8.

WARNING

The complete unit, specifically the drive shaft assembly and muffler exhaust area may become very hot during use. Avoid contact during and immediately after operation, otherwise serious personal injury may result.



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.

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.

NOTICE

The use of emission control components other than those specifically designed for this unit is a violation of federal law.

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 or go to http://www.echo-usa.com/products/maintenance-kit

or

HERE https://www.shindaiwa-usa.com/you-can.aspx

For information about maintenance kits.

Maintenance Intervals

COMPONENT / SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Daily or Before Use		
Air Filter	Inspect / Clean*	
Choke Shutter	-inspect / Clean	1
Fuel System	Inspect ³	
Cooling System	Inspect / Clean	2
Recoil Starter Rope	Inspect / Clean*	1
Screws / Nuts / Bolts	Inspect / Tighten / Replace*	•
Blade	Inspect / Replace*	1
Every Refuel		
Fuel System	Inspect ³	1
3 Months		
Air Filter	Replace*	
Fuel Filter	Inspect*	1
Fuel Cap Gasket	Inspect	'
Spark Plug	Inspect / Clean / Replace*	
Muffler Spark Arrestor	Inspect / Clean / Neplace	
Cylinder Exhaust Port	Inspect / Clean / De-carbon	2
Drive Shaft (flex cable models)	Grease ¹	2
Gear Housing (some models)	Grease ²	
Yearly		
Fuel Filter	Inspect / Replace*	1
Fuel Cap Gasket	Replace*	•

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

MAINTENANCE PROCEDURE NOTES:

Apply lithium based grease every 25 hours of use.

² Apply lithium based grease every 50 hours of use.

³ Low evaporative fuel tanks DO NOT require regular maintenance to maintain emission integrity.

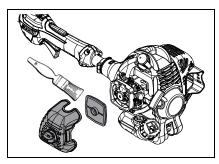
^{*} Replacement is recommended based on the finding of damage or wear during inspection.

Air Filter

Level 1.

Parts Required: Tune-Up Kit

- Close choke (COLD START position). This prevents dirt from entering the carburetor throat when the air filter is removed. Brush accumulated dirt from air cleaner area.
- 2. Remove air filter cover. Brush dirt from inside cover.
- 3. Replace filter if it is damaged, fuel soaked, very dirty, or the rubber sealing edges are deformed.
 - · Lightly brush debris from filter.
 - · Soak heavily soiled filters in water/detergent solution to loosen dirt, then brush lightly.



- Rinse with clean water and allow to dry completely before reuse.
- 4. Install air filter in air filter case.
- Install air filter cover. 5.

Fuel Filter

Level 1.

Parts Required: TUNE UP KIT.

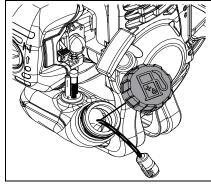
Fuel is VERY flammable. Use extreme care when mixing, storing or handling, or serious personal injury may result.

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

Do not damage fuel line while removing fuel filter from tank or line.

- Pull the fuel filter from the
- 3. Do not remove the wire coil clamp to remove the fuel filter. Pinch the fuel filter with the fingers on one hand and the fuel line with the other hand. Pull and twist slightly to separate.
- 4. Install the new filter with the reverse action.

Note: Federal EPA regulations require all model year



0.65 mm (0.026 in.)

2012 and later gasoline powered engines produced for sale in the United States to be equipped with a special low permeation fuel supply hose between the carburetor and fuel tank. When servicing model year 2012 and later equipment, only fuel supply hoses certified by EPA can be used to replace the original equipment supply hose. Fines up to \$37,500 may be enforced for using a non-certified replacement part.

Spark Plug

Level 2.

Parts Required: Tune-Up Kit

NOTICE

Use only NGK BPM8Y spark plug (BPMR8Y in Canada) otherwise severe engine damage may occur.

- Remove spark plug and check for fouling, worn and rounded center electrode.
- Clean the plug or replace with a new one. DO NOT sand blast to clean. Remaining sand will damage engine.
- 3. Adjust spark plug gap by bending outer electrode.
- 4. Tighten spark plug to 130-170 kgf•cm (112-150 lbf•in.).



Level 2.

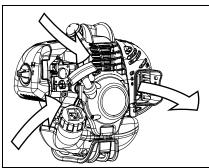


NOTICE

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

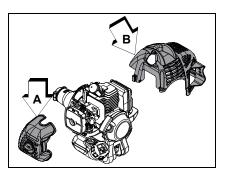
Overheating and engine seizure can occur when:

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



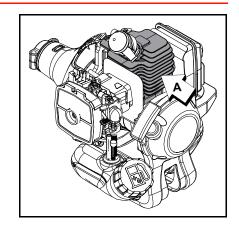
Removal of cooling passage blockages or cleaning of cooling fins is considered "Normal Maintenance." Any failure attributed to lack of maintenance is not warranted.

- 1. Remove spark plug lead.
- 2. Close choke (COLD START [| position). This prevents dirt from entering the carburetor throat when the air filter is removed. Remove air cleaner cover (A).
- Remove engine cover (B). 3.

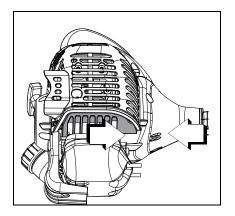


DO NOT use a metal scraper to remove dirt from the cylinder fins.

- 4. Use a brush to remove dirt from the cylinder fins.
- 5. Remove ignition wires from clip for cleaning.



- 6. Remove grass and leaves from the grid between the recoil starter and fuel tank.
- 7. Assemble components in reverse order.



Exhaust System

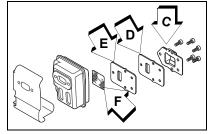
Spark Arrestor Screen Level 2.

Parts Required: Spark Arrestor Screen, Gasket

- 1. Remove spark plug lead and engine cover.
- Place piston at Top Dead Center (TDC) to prevent carbon/dirt from 2. entering cylinder.

- 3. Remove spark arrestor screen cover (C), gaskets (D), (E), and screen (F), from muffler body.
- 4. Clean carbon deposits from muffler components.

Note: When cleaning carbon deposit, be careful not to damage the catalytic element inside muffler.



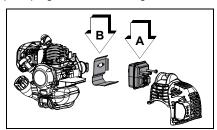
- 5. Replace screen if it is cracked, plugged, or has holes burned through.
- 6. Assemble components in reverse order.

Exhaust Port Cleaning

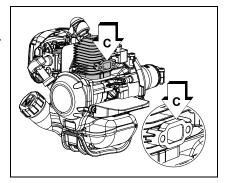
Level 2.

Parts Required: As needed: Heat Shield

- Remove spark plug lead from spark plug, and remove engine cover. 1.
- Place piston at top dead 2. center. Remove muffler (A) and heat shield (B).



Use a wood or plastic 3. scraping tool to clean deposits from cylinder exhaust port (C).



NOTICE

Never use a metal tool to scrape carbon from the exhaust port. Do not scratch the cylinder or piston when cleaning the exhaust port. Do not allow carbon particles to enter the cylinder.

- 4. Inspect heat shield, and replace if damaged.
- 5. Install heat shield and muffler.
- 6. Tighten muffler mounting bolts (or nuts) to 90-110 kgf•cm (80-95 lbf•in).
- 7. Install engine cover and attach spark plug lead.
- 8. Start engine, and warm to operating temperature.
- 9. Stop engine, and re-tighten mounting bolts (or nuts) to specifications.

Carburetor Adjustment

Level 2.

Engine Break-In

New engines must be operated a minimum duration of two tanks of fuel break-in before carburetor adjustments can be made. During the break-in period your engine performance will increase and exhaust emissions will stabilize. Idle speed can be adjusted as required.

High Altitude Operation

This engine has been factory adjusted to maintain satisfactory starting and durability performance up to 330 m (1100 ft.) above sea level (ASL) (96.0 kPa). To maintain proper engine operation and emission compliance above 330 m (1100 ft.) ASL the carburetor may need to be adjusted by an authorized service dealer.

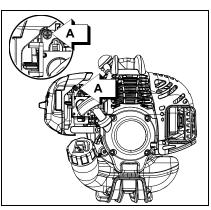
NOTICE

If the engine is adjusted for operation above 330 m (1100 ft.) ASL, the carburetor must be re-adjusted when operating the engine below 330 m (1,100 ft.) ASL, otherwise severe engine damage may result.

Note: Every unit is run at the factory and the carburetor is set in compliance with emission regulations. Carburetor adjustments, other than idle speed, must be performed by an authorized dealer.

WARNING

- The cutting attachment may be moving during carburetor adjustments.
- Wear your protective equipment and observe all safety instructions.
- For units equipped with a clutch, be sure the cutting attachment stops moving when the engine idles.
- When the unit is turned off, make sure the cutting attachment has stopped before the unit is set down.
- Check idle speed and reset if necessary. If a tachometer is available, idle speed screw (A) should be set to the specifications found on "Specifications" page of this manual. Turn idle screw (A) clockwise to increase idle speed: counterclockwise to decrease idle speed.



WARNING

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

Lubrication

Level 1.

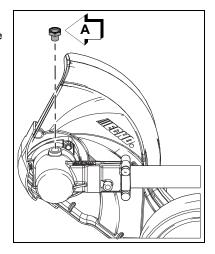
Parts Required: Lithium Grease.

Gear cases without grease plug (A) do not require lubrication.

Note: Your debris shield may appear different than the debris shield shown.

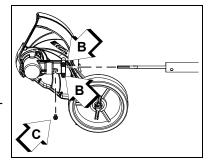
Gear Housing

- Remove plug (A) and add grease to gear housing. Do not overfill.
- Replace plug and tighten securely.



Drive Shaft

- Loosen screws (B) and remove center locating screw (C). Pull gear box and shield from drive shaft housing.
- Pull flexible cable from the drive shaft housing, wipe clean and recoat with 15 ml (0.5 oz.) of grease.
- Slide the flexible cable back in the drive housing. DO NOT get dirt on the flex cable.



- Install the gear housing and shield assembly. Align locating screw hole with hole in drive shaft housing.
- 5. Tighten screws securely.

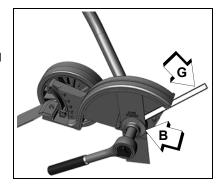
Edger Blade Replacement

Level 1.

Parts required: Blade, new split pin.

Note: Replace blade when it is bent, damaged, or worn shorter than 152.4 mm (6 in.).

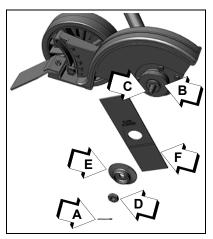
- 1. Remove split pin (A).
- 2. Align hole in inner blade adapter (B) with notch in gear housing, and insert locking tool (G) to prevent PTO shaft (C) from rotating.



- 3. Remove L.H. blade nut (D) by turning clockwise. Remove outer blade adapter (E), and blade (F).
- Install and center blade (F) on 4. inner blade adapter (B).
- Install outer adapter (E) and nut 5. (D). Tighten nut (D) firmly, turning counterclockwise.

Note: Never reuse old split pin.

Install new split pin (A) to secure nut, and ben'd both legs of pin counterclockwise around PTO shaft (C).



TROUBLESHOOTING

	ENGINE PRO	BLEM TROU	BLESHOOTING (CHART
Problem	Check	Status	Cause	Remedy
	Fuel at carburetor	No fuel at carburetor	Fuel strainer or fuel line obstructed	Clean or replace See your dealer
		No fuel at cylinder	Carburetor	See your dealer
				OPEN choke
Engine starts hard	Fuel at cylinder	Muffler wet with fuel	Fuel mixture too	Clean or replace air filter
or		Williaci	HOH	Adjust carburetor
For add a				See your dealer
Engine does not start	Spark at end of plug		STOP switch OFF - Electrical problem -	Turn switch to ON
	wire		Interlock switch	See your dealer
	Spark at	No spark	Incorrect gap - Covered with carbon - Fouled with fuel - Plug	Adjust to 0.65 mm (0.026 in.)
	plug		defective	Clean or replace plug
Engine	Air filter	Air filter dirty	Normal wear	Clean or replace
runs, but dies	Fuel filter	Fuel filter dirty	Contaminants or residue in fuel	Replace filter or replace fuel
or				
Engine does not accelerate properly	Fuel vent	Fuel vent plugged	Contaminated fuel	Clean or replace

STORAGE PE-225

	ENGINE PRO	BLEM TROU	BLESHOOTING (CHART
Problem	Check	Status	Cause	Remedy
Engine	Spark plug	Plug dirty or worn	Normal wear	Clean and adjust or replace
runs, but dies	Carburetor	Improper adjustment	Vibration	Adjust
or Engine	Cooling system	Cooling system dirty or plugged	Extended operation in dirty or dusty locations	Clean
does not accelerate properly	Spark arrestor screen	Spark arrestor screen plugged	Normal wear	Replace
Engine does not crank	N	I/A	Internal engine problem	See your dealer

DANGER

Fuel vapors are extremely flammable and can cause fire and/or explosion. Never test for ignition spark by grounding spark plug near cylinder plug hole, otherwise serious personal injury can result.

STORAGE

WARNING

During operation the muffler or catalytic muffler and surrounding cover become hot. Always keep exhaust area clear of flammable debris during transportation or when storing, otherwise serious property damage or personal injury may result.

Long Term Storage (Over 30 Days)

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

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

PE-225 STORAGE

DANGER

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

- Place the stop switch in the "OFF" position. 2.
- 3. Remove accumulation of grease, oil, dirt and debris from exterior of unit.
- 4. Perform all periodic lubrication and services that are required.
- 5. Tighten all the screws and nuts.
- 6. Drain fuel tank completely. Press purge bulb 6-7 times to remove remaining fuel from carburetor then drain the tank again. Close choke, start and run the engine until it stops due to lack of fuel.
- 7. Allow engine to cool. Remove the spark plug lead from the spark plug. Remove the spark plug. Pour 7 cc (0.25 oz.) of fresh, clean, two-stroke engine oil into the cylinder through the spark plug hole.
- Pull the recoil starter handle 2-3 times to distribute the oil inside the 8. engine.
- 9. Observe the piston location through the spark plug hole. Pull the recoil handle slowly until the piston reaches the top of its travel and leave it there.
- 10. Install the spark plug. Connect the spark plug lead to the spark plug.

SPECIFICATIONS

MODEL	PE-225
Length	1736 mm (68.3 in.)
Width	304 mm (12.0 in.)
Height	335 mm (13.2 in.)
Weight (dry) w/o Cutter Head	5.4 kg (11.9 lb.)
Engine Type	Air cooled, two-stroke, single cylinder gasoline engine
Bore	32.2 mm (1.27 in.)
Stroke	26.0 mm (1.02 in.)
Displacement	21.2 cc (1.29 cu. in.)
Exhaust	Spark arrestor muffler or spark arrestor muffler with catalyst
Carburetor	Diaphragm w/purge pump
Ignition System	Flywheel magneto, capacitor discharge ignition type
Spark Plug	NGK BPM8Y (BPMR8Y in Canada) (Gap 0.65 mm [0.026 in.])
Fuel	Mixed (Gasoline and Two-stroke Oil)
Gasoline/Oil Ratio	50:1
Gasoline	Use 89 Octane unleaded. Do not use fuel containing methyl alcohol, more than 10% ethyl alcohol or 15% MTBE. Do not use alternative fuels such as E-15 or E-85.
Oil	ISO-L-EGD (ISO/CD 13738) and J.A.S.O. M345- <u>FD</u> , two-stroke, air-cooled engine oil.
Fuel Tank Capacity	0.42 L (14.2 US fl. oz.)
Starter System	Automatic Rewind Starter
Clutch	Centrifugal Type
Drive Shaft	6.0 mm (1/4 in.) flexible shaft
Gear Case Ratio	1.62:1 Reduction
Rotating Direction	Counter-Clockwise; viewed from left side
Standard Cutter Head	Metal blade
Blade Length	203.2 mm (8.0 in.)
Blade Width	50.8 mm (2 in.)
Blade Thickness	Standard 2.3 mm (0.090 in.), Premium 4.6 mm (0.181 in.)

SPECIFICATIONS

MODEL	PE-225
Handle	Front D-loop, Rear - Grip
Idle Speed	3,000 RPM
Clutch Engagement Speed	4,200 RPM
Wide Open Throttle Speed (W.O.T.)	10,900 RPM

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.

REGISTRATION CARD : TARJETA DE REGISTRO : CARTE D'ENREGISTREMENT DU PRODUIT F011000

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

na estampilla! Le alertaran sobre actualizaciones del o y/o se le enviara información sobre los nuevos pro-ECHO y las ofertas especiales. Simplemente visite: Registrese en la pagina web www.echo-usa.com POR INTERNET:

OPTION EN LIGNE: Enregistrer en ligne et épargner un finnnel 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

lease Print : Por Favor Enscriba Con Letra De Molde : En Lettre Carré S.V.P.	etra De Molde : E	in Lettre Carré S.V.P.	Confidential: Information provided will not be shared or sold
Purchaser's Name : Nombre del Comprador : Nom de l'acheteur	ador : Nom de l'acl	heteur	Primary use of tool: ☐ Professional ☐ Homeowner ☐ Rental Equip. Uso primario de la herramienta:☐Profesional ☐ Dueño de casa ☐ Alquiller Usage principal: ☐ Professionnel ☐ Residential ☐ Location Do vou wish for receive nendrelle FCHO monfurd information and special offers
Address : Dirección : Adresse			by your man its courty plantage ben'to placed information and special ones. Desea usted recipir información periódica y ofertas especiales por correo electronico sobre el producto ECHO? Il 198 Il No. Soulpatiez-viors presuoir nériodiriament de l'information sur les produits.
City : Ciudad : Ville	State : Estado : Province	Zip Code : Código Postal : Code Postal	ECHO et les offres spéciales par courrier electronique ? □ Oui □ Non Did you visit the ECHO website before purchasing your product? □ No. □ No.
E-Mail Address : Dirección De Correo Electrónico : Courrier Électronique	Electrónico : Coun	ier Electronique	Visito usted la pagina web ECHO antes de comprar su producto? □ Si □ No □ No visité le site d'ECHO avant de procurer votre produit? □ Oui □ Non
Phone Number: Número De Teléfono: Téléphone		Date of Purchase : Fecha de la Compra : Date de l'achat	What factor(s) most influenced your purchase? Performance
Where Purchased : Nombre del Almacén donde fue Comprado : Lieu d'achat	n donde fue Compr	rado : Lieu d'achat	nfluenció más en su comp D Precio D Experiencia Anterior Marca
Wodel Number : Numero del Modelo : No	o. de modéle Seri	Nodel Number : Numero del Modelo : No. de modéle Serial Number : Numero de Serie : No. de série	cteurs) vous a influencé le pl Prix Expérience
begistering your purchase enables us to contact you in the unititledy event of a service update or prod wiverset file event of the event of a service of a servic	you in the unlikely even impra nos permite estar on del producto y verific le vous contacter dans l vous étes le propriétair	egistering your purchase enables us to contact you in the unlikely event of a service update or product recall and verifies your newthers the total contact of the service update of contact of the service of its revocación del producto y verificación de propedad en asso de erobo o petida s: en energisterine de votre achat rous permitera de votre achat curso permitera de votre achat curso contacte de can proprieda en modificacións des instructions en registerine de votre achat curso de meditar que vous édes le propriedar en cas 6 ev do ude pepte la productiva de service desse la propriedar en cas 6 ev do ude pepte la productiva de service desse la propriedar en cas 6 ev do ude pepte la productiva de service de service de case de case de service de case de service de case de service de case de	□ Ami/Famille □ Marque □ Garantie ECHO INC., 400 Dakwood Rd., Lake Zurich, IL 60047 x7572270206 02-2012 1.800432.ECHO WWW.ECHO-USA.COM x7572270206 02-2012

T46814001001 - T46814999999 T86714001001 - T86714999999 U36414001001 - U36414999999



400 Oakwood Road Lake Zurich, IL 60047 www.echo-usa.com