



Operator's Manual LE235 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.

Note: This product complies with CAN ICES-2/NMB-2.

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INTRODUCTION

Specifications, descriptions, and illustrative material in this literature are as accurate as possible. Specifications are subject to change without notice. Illustrations might include optional equipment and accessories, and might not include all standard equipment. Your equipment might appear slightly different than pictured 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

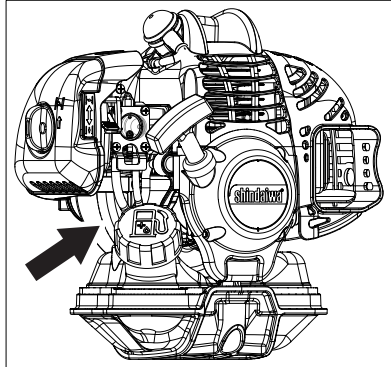
<https://www.shindaiwa-usa.com/manuals>



SERVICING INFORMATION

Parts and Serial Number

Genuine Shindaiwa Parts and Assemblies for your Shindaiwa products are available only from an Authorized Shindaiwa Dealer. When you do need to buy parts always have the Model Number and Serial Number of the unit with you. Image shows serial number location. 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 Shindaiwa Service Dealer. For the name and address of the Authorized Shindaiwa Service Dealer nearest you, ask your retailer or call: 1-877-986-7783. Dealer information is also available on www.shindaiwa-usa.com. When presenting your unit for Warranty service/repairs, proof of purchase is required.

Consumer Product Support

If you require assistance or have questions concerning the application, operation or maintenance of this product you may call the Shindaiwa Consumer Product Support Department at 1-877-986-7783 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

To ensure trouble free warranty coverage it is important that you register your Shindaiwa equipment on-line at www.shindaiwa-usa.com or by filling out the product registration sheet included in this manual. Registering your product confirms your warranty coverage and provides a direct link between you and ECHO if we find it necessary to contact you.

Additional Literature

In addition to finding information online, information is available from your Authorized Shindaiwa 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.





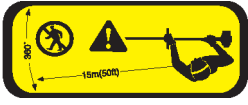



CIRCLE AND SLASH SYMBOL

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

International Symbols

Symbol	Description	Symbol	Description
	Warning, See Operator's Manual	H	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
	Safety/Alert		STOP Switch
	Hot Surface		Fuel and Oil Mixture
	DO NOT Allow Flames or Sparks Near Fuel		Ignition ON / OFF
	DO NOT Smoke Near Fuel		Purge Bulb
	Choke Control RUN Position (Choke Open)		Choke Control COLD START Position (Choke Closed)
	Keep Feet Away From Blade		Rotating Cutting Attachment

Symbol	Description	Symbol	Description
	Thrown Objects		Direction of Blade
	DO NOT USE LINE HEADS - Blades Only		DO NOT USE BLADES - Line Heads Only
			Keep Bystanders and Helpers Away 15 m (50 ft.)
			<p>AVOID KICKOUT Keep Bystanders At Least 15 m (50 ft.) Away</p> <p>Beware Thrown Objects Wear Eye Protection</p>

Note: Not all symbols will appear on your unit.



LOOK BEFORE YOU PUMP!
Ethanol Percentage

0% - 10% 15% - 30% - 50% - 85%

USE E10 OR LESS FUEL

Do not use any fuel containing greater than 10 percent ethanol (E10) in this equipment. It may cause damage or failure and is prohibited by Federal Law.
For Details, see the "Fuel" Section of your Operators Manual

Personal Condition and Safety Equipment

WARNING

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

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.

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.

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.

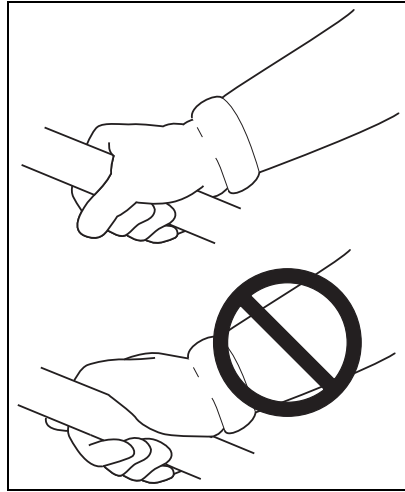
- Keep your body warm, especially the head, neck, feet, ankles, hands, and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks, and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the unit or other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

To reduce the risk of RSI/CTS, do the following

- Avoid using your wrist in a bent, extended, or twisted position. Instead try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force with which you do the repetitive movement.
- Do exercises to strengthen the hand and arm muscles.



- Immediately stop using all power equipment and consult a doctor if you feel tingling, numbness, or pain in the fingers, hands, wrists, or arms. The sooner RSI/CTS is diagnosed, the more likely permanent nerve and muscle damage can be prevented.

! DANGER

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

Read Manuals

- Provide all users of this equipment with literature 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, and check for any hidden hazards. Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 15 m (50 ft.) while the unit is in use.
- 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 overreach.
- Keep cutting attachment below waist.
- Keep all body parts away from rotating cutting attachment.

Avoid Hot Surfaces

- If unit is equipped with muffler, keep exhaust area clear of flammable debris. Avoid contact during and immediately after operation.



Equipment

WARNING

Use only Shindaiwa 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/missing nuts, bolts, and screws. Tighten and/or replace as needed.
- ◆ Inspect shield for damage and that shield is securely in place. Replace if shield is damaged or missing.
- ◆ Check that the cutting attachment is firmly attached and in safe operating condition.
- ◆ 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)

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 (see example) is "B", "C", "K", or "T", the emission control system is EM and TWC (3-way catalyst). The fuel tank/fuel line emission control system is EVAP (evaporative emissions).

EMISSION CONTROL INFORMATION

ENGINE FAMILY: XEHS.0214KO DISPLACEMENT: 21.2 cc
EMISSION COMPLIANCE PERIOD: 300 Hours
THIS ENGINE MEETS U.S.EPA EXH/EVAP EMISSION
REGULATIONS FOR MODEL YEAR XXXX REFER TO OWNER'S MANUAL
FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

YAMABIKO CORP.

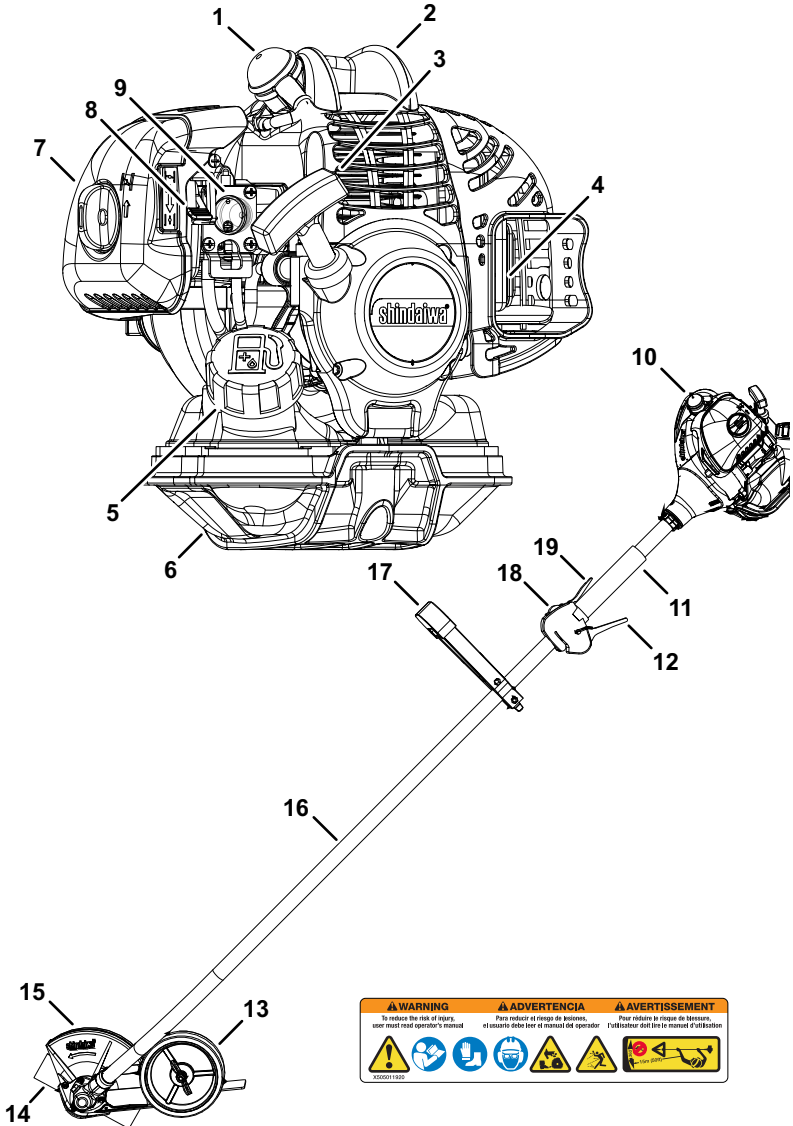
An Emission Control Label is located on the engine. (This is an EXAMPLE ONLY, information on label varies by engine FAMILY).

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 dealer. Safety label is for example only. Your label may appear slightly different.



1. Spark plug
2. Top guard
3. Recoil starter handle
4. Spark arrester muffler or spark arrester muffler with catalyst
5. Fuel tank cap
6. Fuel tank
7. Air filter
8. Choke
9. Purge bulb
10. Power head
11. Throttle handle - for right hand
12. Throttle trigger
13. Wheel
14. Blade
15. Debris shield/flap
16. Drive shaft assembly
17. Support handle - for left hand
18. Stop switch
19. Throttle trigger lockout

CONTENTS

The Shindaiwa 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 Shindaiwa Dealer of damaged or missing parts. Use the contents list to check for missing parts.

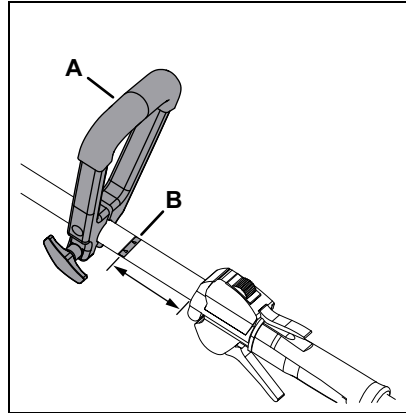
- 1 Power head and drive shaft assembly
- 1 Operator's manual
- 1 Warranty statement
- 2 Split pins

ASSEMBLY

Support Handle

1. If necessary, position support handle (A) for comfortable operation.

Note: Label (B) shows minimum spacing for support handle location.



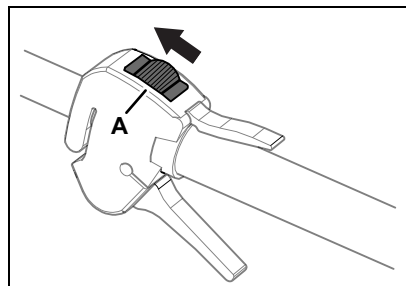
OPERATION

Starting Cold Engine

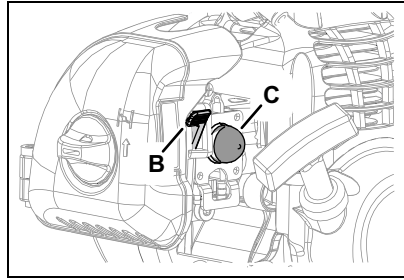
WARNING

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.

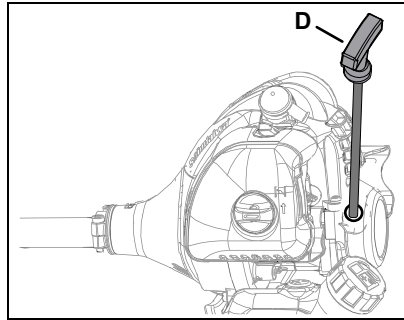
1. Move stop switch (A) forward, away from the STOP position.



2. Move choke (B) to COLD START (CLOSED) position.
3. Pump purge bulb (C) until fuel is visible and flows freely in the clear fuel tank return line. Pump bulb an additional four or five times.



4. 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 starts (or maximum two to three pulls).



5. After engine starts (or two to three 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 two to three pulls, repeat instructions 2 - 5.

6. 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

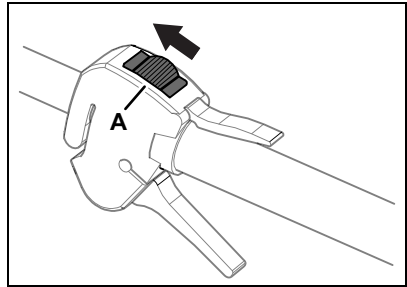
The starting procedure is the same as Cold Start except do not close the choke, and do not hold throttle trigger fully depressed.

WARNING

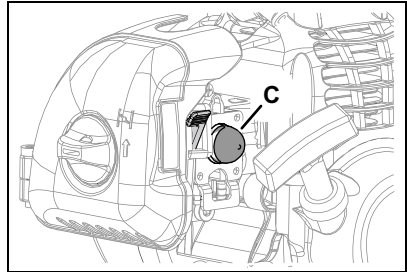
The attachment should not move at idle, otherwise serious personal injury may result.

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

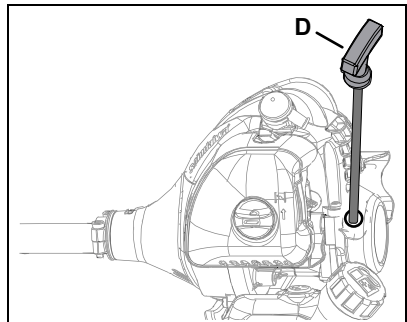
1. Move stop switch (A) forward, away from the STOP position.



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



3. 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 starts.



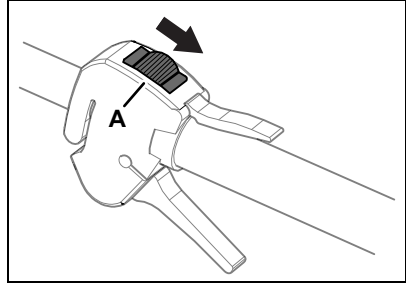
Note: If engine does not start after two to three pulls, use Cold Start Procedure.

Stopping Engine

WARNING

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

1. Release throttle trigger and allow engine to return to idle before shutting off engine.
2. Move stop switch (A) rearward, to STOP position.



Edger Operation Techniques

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.

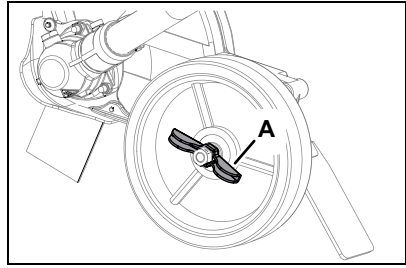
1. Before edging, water the area to soften the ground to make edging easier.
2. Check the area and remove all obstacles and objects that could be thrown.
3. Plan to edge regularly to make it easier to keep a neat edge and to avoid having to make more than one pass.

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

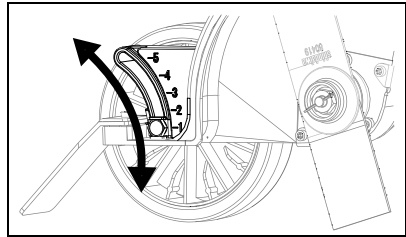
WARNING

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

- Loosen adjustment knob (A) to adjust the blade depth.



- Set the blade depth between 1 (lowest) and 5 (highest).
- Position the unit on your right hand side when edging.



WARNING

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

WARNING

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.

- Do not force the blade. Move only as quickly as the blade will allow.

MAINTENANCE

WARNING

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

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

Maintenance Intervals

COMPONENT OR SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Daily or Before Use		
Air Filter	Inspect/Clean*	1
Choke Shutter	Inspect/Clean*	1
Fuel System	Inspect ³	1
Cooling System	Inspect/Clean	2
Recoil Starter Rope	Inspect/Clean *	1

COMPONENT OR SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Screws/Nuts/Bolts	Inspect/Tighten/Replace*	1
Every Refuel		
Fuel System	Inspect ³	1
3 Months		
Air Filter	Replace*	1
Fuel Filter	Inspect*	1
Fuel Cap Gasket	Inspect*	1
Spark Plug	Inspect/Clean/Replace*	1
Muffler Spark Arrester	Inspect/Clean/Replace*	2
Cylinder Exhaust Port	Inspect/Clean/De-carbon	2
Drive Shaft (flex cable models)	Grease ¹	2
Gear Housing	Grease ²	2
Yearly		
Fuel Filter	Inspect/Replace*	1
Fuel Cap Gasket	Replace*	1

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

Maintenance Procedure Notes:

¹ 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.

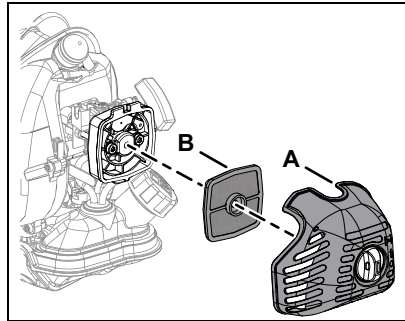
* Replacement is recommended based on the finding of damage or wear during inspection.

Air Filter

Level 1.

Parts required: Tune-up kit.

1. 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 (A). Brush dirt from inside cover.
3. Replace air filter (B) if it is damaged, fuel soaked, very dirty, or the rubber sealing edges are deformed.
 - Lightly brush debris from air filter.
 - Soak heavily soiled air 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.
5. Install air filter cover.



Fuel Filter

Level 1.

Parts required: Tune-up kit.

⚠ DANGER

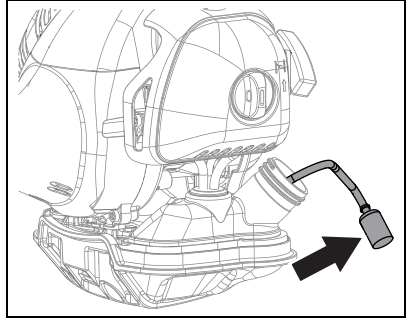
Fuel is flammable. Use extreme care when mixing, storing or handling, or serious personal injury may result.

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

NOTICE

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

2. Pull the fuel filter from the tank.
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

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

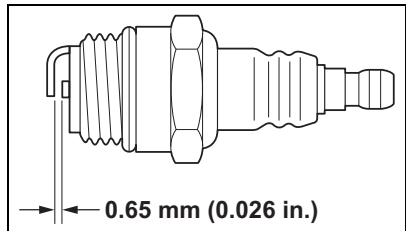
Level 2.

Parts required: Tune-up kit.

NOTICE

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

1. Remove spark plug and check for fouling, worn and rounded center electrode.
2. Clean the plug or replace with a new one. Do not sandblast to clean.
3. Adjust spark plug gap by bending outer electrode.
4. Tighten spark plug to 130-170 kgf•cm (112-150 lb•in).



Cooling System

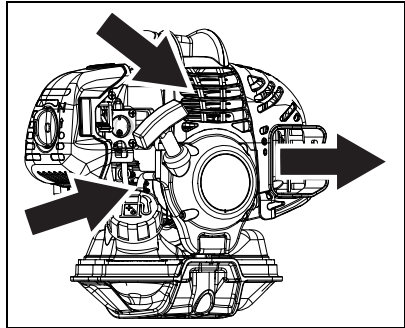
Level 2.

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.

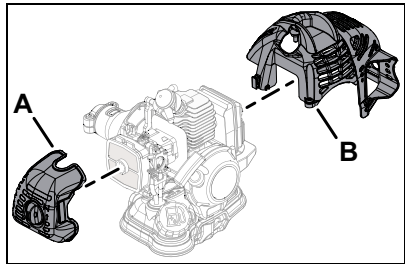
Overheating and engine seizure can occur when:

- 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.

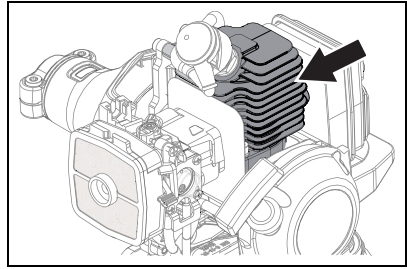
1. Remove spark plug lead.
2. Close choke (COLD START position). This prevents dirt from entering the carburetor throat when the air filter is removed.
3. Remove air filter cover (A).
4. Remove engine cover (B).



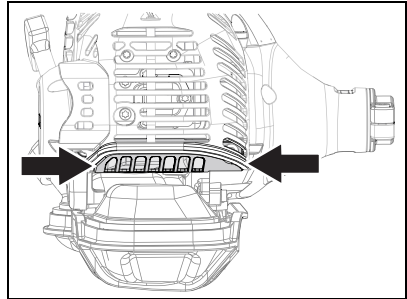
NOTICE

Do not use a metal scraper to remove dirt from the cylinder fins.

5. Use a nylon or plastic bristle brush to remove dirt from the cylinder fins.
6. Remove ignition wires from clip for cleaning.



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



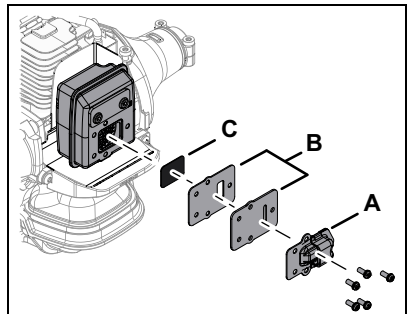
Exhaust System

Spark Arrester Screen

Level 2.

Parts required: Spark arrester screen, gasket.

1. Remove spark plug lead and engine cover.
2. Place piston at Top Dead Center (TDC) to prevent carbon/dirt from entering cylinder.
3. Remove spark arrester screen cover (A), gasket (B), and screen (C), from muffler body.



NOTICE

When cleaning carbon deposits, be careful not to damage the catalytic element inside muffler.

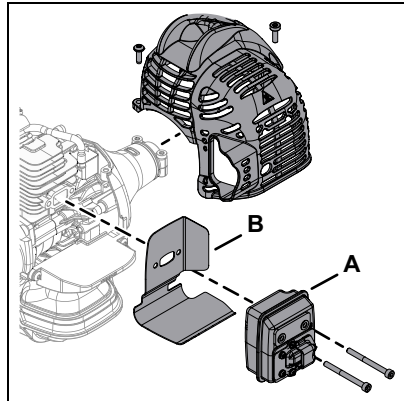
4. Clean carbon deposits from muffler components.
5. Replace screen if it is cracked, plugged, or has holes burned through.
6. Assemble components in reverse order.

Exhaust Port Cleaning

Level 2.

Parts required: Heat shield (as needed).

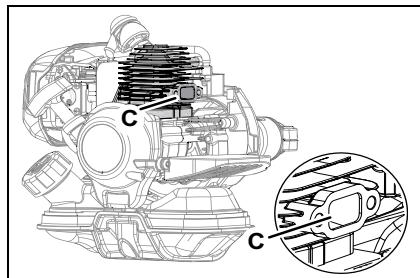
1. Remove spark plug lead from spark plug, and remove engine cover.
2. Place piston at top dead center. Remove muffler (A) and heat shield (B).



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.

3. Use a wood or plastic scraping tool to clean deposits from cylinder exhaust port (C).
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, re-tighten mounting bolts (or nuts) if required.

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 335 m (1,100 ft.) above sea level (ASL) (96.0 kPa). To maintain proper engine operation and emission compliance above 335 m (1,100 ft.) ASL the carburetor may need to be adjusted by an authorized service dealer.

NOTICE

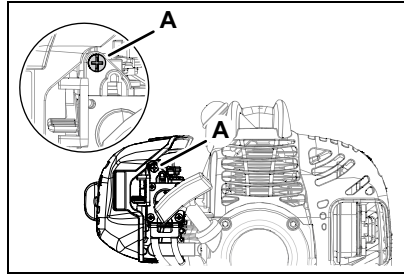
If the engine is adjusted for operation above 335 m (1,100 ft.) ASL, the carburetor must be re-adjusted when operating the engine below 335 m (1,100 ft.) ASL, otherwise severe engine damage may result.

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.

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

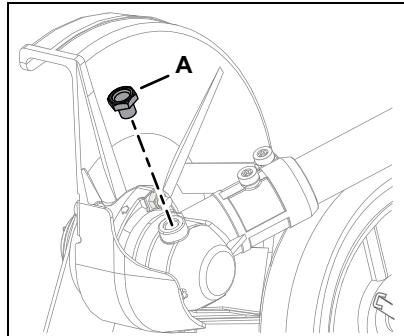
Parts required: Lithium-based grease.

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

Gear Housing

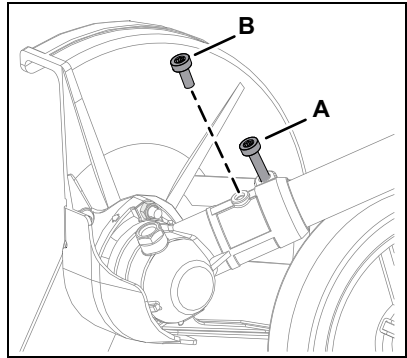
Gear cases without a grease plug do not require lubrication.

1. Clean all loose debris from gear case.
2. Remove grease plug (A), if required, and check level of grease.
3. Add grease if necessary. Do not overfill.

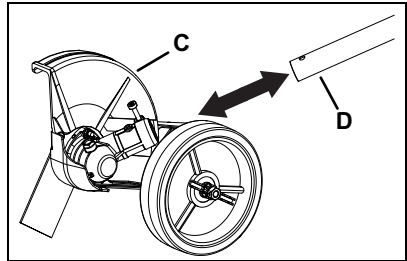


Drive Shaft

1. Loosen screw (A) and remove center locating screw (B).

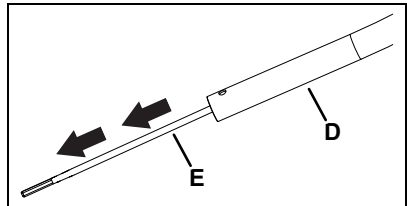


2. Pull gear box and shield (C) from drive shaft housing (D).



3. Pull flexible cable (E) from drive shaft housing (D), wipe clean and coat with 15 ml (0.5 oz.) of lithium-based grease.

4. Slide the flexible cable back in the drive housing. Do not get dirt on the flex cable.



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

Edger Blade Replacement

Level 1.

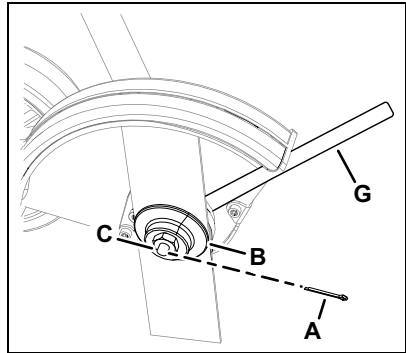
Parts required: Blade, new split pin.

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

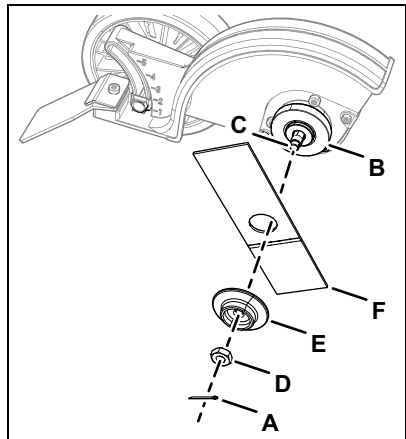
CAUTION

Wear gloves or personal injury may result. Gear case and surrounding area may be hot.

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



Note: Never reuse old split pin.

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

TROUBLESHOOTING

! DANGER

Fuel vapors are 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.

ENGINE PROBLEM TROUBLESHOOTING CHART				
Problem	Check	Status	Cause	Remedy
Engine starts hard. or Engine does not start.	Fuel at carburetor.	No fuel at carburetor.	Fuel filter or fuel line obstructed.	Clean or replace. See your dealer.
	Fuel at cylinder.	No fuel at cylinder.	Carburetor	See your dealer.
		Muffler wet with fuel.	Fuel mixture too rich.	Open choke. Clean or replace air filter. Adjust carburetor. See your dealer.
	Spark at end of plug wire.	No spark.	Stop switch OFF. Electrical problem. Interlock switch.	Turn switch to ON. See your dealer.
	Spark at plug.		Incorrect gap. Covered with carbon. Fouled with fuel. Spark plug defective.	Adjust to 0.65 mm (0.026 in.). Clean or replace spark plug.

ENGINE PROBLEM TROUBLESHOOTING CHART				
Problem	Check	Status	Cause	Remedy
Engine runs, but dies. or Engine does not accelerate properly.	Air filter	Air filter dirty.	Normal wear.	Clean or replace.
	Fuel filter	Fuel filter dirty.	Contaminants or residue in fuel.	Replace filter or replace fuel.
	Fuel vent	Fuel vent plugged.	Contaminated fuel.	Clean or replace.
Engine runs, but dies. or Engine does not accelerate properly.	Spark plug	Plug dirty or worn.	Normal wear.	Clean and adjust or replace.
	Carburetor	Improper adjustment.	Vibration	Adjust
	Cooling system	Cooling system dirty or plugged.	Extended operation in dirty or dusty locations.	Clean
	Spark arrester screen	Spark arrester screen plugged.	Normal wear.	Replace
Engine does not crank.	N/A		Internal engine problem.	See your dealer.

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:

DANGER

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

1. Store unit in a dry, dust-free place, out of the reach of children.
2. Place the stop switch in the OFF position.
3. Remove accumulation of grease, oil, dirt and debris from exterior of unit.
4. Perform all periodic lubrication and services that are required.
5. Tighten all the screws and nuts.

DANGER

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

6. Drain fuel tank completely. Press purge bulb six to seven 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 fl. oz.) of fresh, clean, two-stroke engine oil into the cylinder through the spark plug hole.
8. Pull the recoil starter handle two to three times to distribute the oil inside the 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	LE235
Length	1,721 mm (67.7 in.)
Width	330 mm (13.0 in.)
Height	362 mm (14.3 in.)
Weight - dry (without cutter head)	6.0 kg (13.2 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 in. ³)
Exhaust	Spark arrester muffler or spark arrester muffler with catalyst
Carburetor	Diaphragm with purge bulb
Ignition System	Flywheel magneto, capacitor discharge ignition type
Spark Plug	NGK BPM8Y (BPM8RY 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- FD, two-stroke, air-cooled engine oil
Fuel Tank Capacity	0.38 L (14.2 US fl. oz.)
Starter System	Automatic rewind starter
Clutch	Centrifugal type
Operation Rod	25 mm (1.0 in.) aluminum tube
Drive Shaft	6.0 mm (0.25 in.) flexible shaft

MODEL	LE235
Gear Case Ratio	1.62:1
Rotating Direction	Counterclockwise (viewed from left side)
Cutter head	203 mm (8.0 in.) 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.)
Vibration Reduction Systems	Rubber cushion on engine mount Rubber anti-vibration grip on front and rear handle
Handle	Front - D-loop type Rear - Rubber anti-vibration grip
Idle Speed	3,000 RPM
Clutch Engagement Speed	4,200 RPM
Wide Open Throttle Speed	10,900 RPM

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Model Number : Numero del Modelo : No. de modèle	Serial Number : Numero de Serie : No. de série

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Primary use of tool: Professional Homeowner Rental Equip.
 Uso primario de la herramienta: Profesional Dueño de casa Alquiler
 Usage principal: Professionnel Résidentiel Location
 Do you wish to receive periodic Shindaiwa product information and special offers by e-mail? Yes No
 ¿Desea usted recibir información periódica y ofertas especiales por correo electrónico sobre el producto Shindaiwa? Yes No
 Souhaitez-vous recevoir périodiquement de l'information sur les produits Shindaiwa et les offres spéciales par courrier électronique? Oui Non
 Did you visit the Shindaiwa website before purchasing your product? Yes No
 Visito usted la página web Shindaiwa antes de comprar su producto? Si No
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