

# Operator's Manual ES-250 Shred 'N' Vac®

## **WARNING**

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

## **A 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

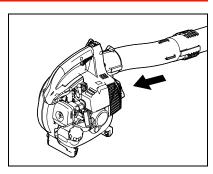
https://www.shindaiwa-usa.com/manuals



## SERVICING INFORMATION

#### **Parts and Serial Number**

Genuine ECHO parts and assemblies for your ECHO products are available only from an Concessionnaire de Service Agréé. 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 Service Dealer. For the name and address of the Authorized Service Dealer nearest you, ask your retailer or call 1-800-432-ECHO (3246). Authorized Service Dealer information is also available on our website https://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 a.m. to 5:00 p.m. (Central Standard Time) Monday through Friday. Before calling, please know the model and serial number of your unit.

## **Product Registration**

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

#### Additional Literature

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

ES-250 SAFETY

#### **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 COULD 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
	Read and understand the operator's manual.	Τ	Carburetor adjustment (high speed)
	Wear eye, ear and head protection.	T	Carburetor adjustment (idle speed)
	Wear hand protection.	اـ	Carburetor adjustment (low speed)
<u> </u>	Safety/alert	STOP	Stop switch
atullitutslus.	Hot surface	+6	Fuel and oil mixture
-	Idle speed	<b>*</b>	Fast speed
	Finger severing	•	Purge bulb
	Do not allow flames or sparks near fuel.	Ignition ON OFF O	Ignition on / off
(3)	Do not smoke near fuel.	•	Choke control cold start position (choke closed)

Symbol	Description	Symbol	Description
	Choke control run position (choke open)	للا	Wear slip resistant footwear.
	<b>2</b>	Beware of throw	vn objects.
15m	Keep bystanders and helpe away 15 m (50 ft.).		s and helpers ft.).

Note: Not all symbols will appear on your unit.



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## Personal Condition and Safety Equipment

## WARNING

Cancer and Reproductive Harm https://www.P65Warnings.ca.gov

## **WARNING**

The muffler or catalytic muffler and surrounding cover may become extremely hot. If unit is equipped with muffler, 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 (not included) 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.

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#### **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

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**

## **A 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.

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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 overhead 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 gas-powered products indoors or in inadequately ventilated areas. Engine exhaust contains poisonous emissions and can cause serious injury or death.

#### Read the Manual

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

#### Clear the Work Area

- Clear the area of children, bystanders, and pets. At a minimum, keep all children, bystanders, and pets outside a 15 m (50 ft.) radius; 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 (not included). If you are approached, stop the engine.
- Avoid blowing debris towards people, pets, open windows, or vehicles when using unit.

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 Review area to be cleared. Look for potential hazards such as stones or metal objects.

#### Keep a Firm Grip

• To prevent from dropping the unit, hold the handle in one hand, with thumb and fingers encircling the handle.

#### Keep a Solid Stance

 Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not over reach.

#### **Avoid Hot Surfaces**

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





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## Equipment

# **WARNING**

Use only approved attachments. Serious injury can 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.

- · Do not attempt to modify this product. Serious injury can result from the use of any modified product.
- · Check unit for loose/missing nuts, bolts, and screws. Tighten and/or replace as needed.
- · Do not use blower if any part is missing or damaged.
- · Have repairs done only by an authorized service dealer.

## **A** 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 might 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**

#### CARB and EPA Emission 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: 50Hours THIS ENGINE MEETS 2013 U.S.EPA EXH/EVP & CALIFORNIA EXH/EVP 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 EXH/EVP & CALIFORNIA EXH/EVP EMISSION REGULATIONS FOR S.O.R.E. REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

YAMABIKO CORP. MMM/YYYY [E]

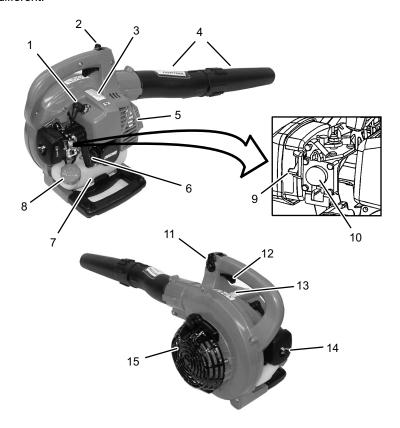


#### **Product Emission Durability (Emission Compliance Period)**

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) or etching(s) on your unit. Make sure they are legible, and that you understand and follow the instructions. If any cannot be read, replacements can be ordered from your ECHO dealer. Images shown below are for example only. Those on your unit might appear slightly different









CONTENTS ES-250

- 1. Spark plug
- 2. Stop switch
- Safety decal
- 4. Blower pipes
- 5. Spark arrester muffler (with or without catalyst)
- Recoil starter handle
- Fuel tank
- 8. Fuel tank cap
- Choke
- Purge bulb
- 11. Throttle position lever
- Throttle trigger
- 13. Safety decal
- 14. Air filter
- Fan / shredder blade cover

## **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
- 1 Blower pipe (upper)
- 1 Blower pipe (lower)
- 1 Shred 'N' Vac® suction tube
- 1 Elbow pipe
- 1 Debris bag
- 1 Operator's Manual
- 1 Warranty statement



ES-250 ASSEMBLY

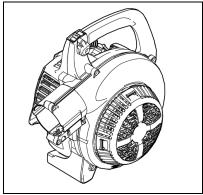
#### **ASSEMBLY**

# WARNING

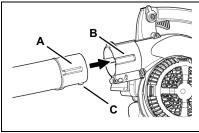
Never perform maintenance or assembly procedures with engine running or serious personal injury may result.

## **Install Blower Pipes**

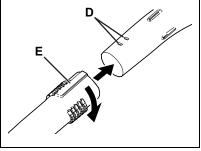
Stand unit upright on blower base.



2. Align locking ribs (A) on upper blower pipe with recesses (B) in fan case. Ensure short locking rib (C) faces downward. Slide upper blower pipe into fan case until a clicking sound is heard.



- 3. Align tabs (D) with grooves (E) and slide lower blower pipe over upper pipe until there is light resistance. Do not force connection.
- Hold upper pipe, and turn lower pipe clockwise, engaging positive locking channels until connection is firm. Do not force connection.



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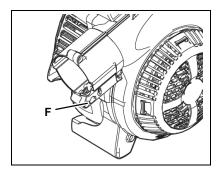
Note: Blower use will eventually loosen pipe connections. Exclusive positive locking system allows pipes to be tightened. If loosening occurs, remove lower straight pipe, and install according to steps 3 and 4.

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## **Remove Blower Pipes**

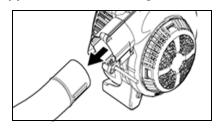
 Insert screwdriver into hole located near lock symbol (F) to release pipe lock.



## **A CAUTION**

Screwdriver tip may stick out opposite side of locking hole.

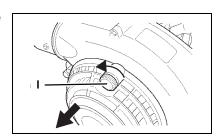
- 2. Pull pipe out of fan case.
- 3. Remove screwdriver.



## Vacuum/Shredding Application

#### Install Vacuum Tube

 Turn knob (I) counter clockwise until hinged housing cover is free to open for vacuum tube installation.

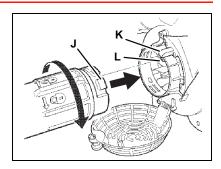


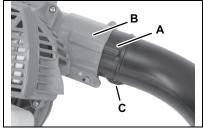
2. Opening housing cover, slide recess (J) on vacuum tube into locking rib (K), and turn the vacuum tube clockwise so that it is locked.

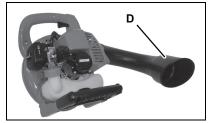
Note: Engine will not start/operate unless safety interlock switch (L) is activated by the vacuum tube.

#### Install Bag

- Stand unit upright on blower base.
- 2. Align locking ribs (A) on elbow pipe with recesses (B) in fan case. Assure short locking rib (C) faces downward. Slide elbow pipe into fan case until a clicking sound is heard.
- 3. Place debris bag opening over flared end of elbow (D), and cinch bag securely with Velcro strap (E).
- 4. Reverse vacuum / shredding assembly instructions to return to blower application.







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## **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. Blower housing might contain shredder blades and other sharp edges that can cause serious injuries if touched, even if engine is off and blades are not moving. Wear gloves to protect hands from sharp edges and hot surfaces.

## WARNING

Operation of this equipment might create sparks that can start fires around dry vegetation. This unit is equipped with a spark arrester to prevent discharge of hot particles from the engine. Contact local fire authorities for laws or regulations regarding fire prevention requirements.

## **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**

- This blower should be used for clearing leaves, grass, debris, and dust in yards, gardens, driveways, and parking lots only.
- Always maintain a direct, clear line of site to the unit and the work being performed.
- · Always be alert for changes in operation of unit.
- Always shut engine off before transporting unit to new location.
- Always secure the unit during transportation to prevent turnover, fuel spillage, and damage to the unit.

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ES-250 OPERATION

#### Fuel

## WARNING

Diesel fuels and alternative fuels, such as E15 (15% ethanol), E85 (85% ethanol) or any fuels not meeting ECHO requirements are not approved for use in ECHO two-stroke or hybrid fourstroke gasoline engines. Use of diesel or alternative fuels may 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 may 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 two-stroke and two or four-stroke hybrid engines.

Two-Stroke Oil - A two-stroke engine oil, such as ECHO branded twostroke oils, meeting ISO-L-EGD (ISO/CD 13738) and J.A.S.O. FD Standards must be used. ECHO branded two-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

Two-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 https://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.

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- · Avoid repeated or prolonged skin contact.
- · Avoid inhaling oil mists or vapors.

ECHO branded two-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**

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

- · Use an approved fuel container.
- · 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.
- · Use caution when handling fuel. Mix and pour fuel outdoors where there are no sparks and flames. Slowly remove the fuel cap only after stopping the engine and allowing the unit to cool. Do not smoke while fueling or mixing fuel. Move the unit at least 3 m (10 ft.) from the fueling point 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

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

FUEL TO OIL MIX - 50:1 RATIO			
US		Metric	
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 states may require the use of automatic fuel shut-off containers to reduce fuel spillage.

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

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.

## NOTICE

Stored fuel ages. Do not mix more fuel than you expect to use in thirty days or ninety days when a fuel stabilizer is added.

Stored two-stroke fuel may 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.

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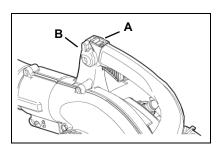
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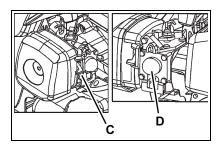
## **Starting Cold Engine**

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

Note: Engine will not run if safety switch is not activated.

- Move throttle position lever (B) midway between idle and full throttle positions.
- 3. Move choke (C) to COLD START (closed) position.
- Pump purge bulb (D) until fuel is visible and flows freely in the clear fuel tank return line.

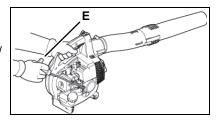




## NOTICE

Recoil starter: Use short pulls - only 1/2 - 2/3 of rope for starting. Do not allow the rope to snap back in. Always hold the unit firmly.

- Place the unit on a flat, clear area. Firmly grasp throttle handle with left hand and rapidly pull recoil starter handle/ rope (E) until engine fires, or maximum five pulls.
- Move choke lever (C) to RUN position, and if necessary, restart engine.



Note: If engine does not start with choke in RUN position after five pulls, repeat steps 3 - 6.

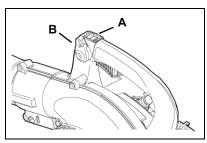
7. After engine warm up, gradually depress throttle trigger to increase engine RPM to operating speed.

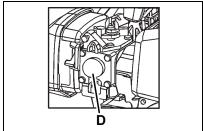
Note: Allow engine to warm up 3 minutes before use.

## Starting Warm Engine

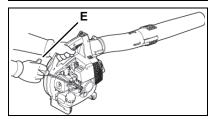
The starting procedure is the same as Cold Start except do not close the choke.

- 1. Move stop switch (A) away from the STOP position.
- 2. Move position lever (B) midway between idle and full throttle positions.throttle
- Pump purge bulb (D) until fuel is visible and flows freely in the clear fuel tank return line.





Place the unit on a flat, clear 4. area. Firmly grasp throttle handle with left hand and rapidly pull recoil starter handle/ rope (E) until engine fires.



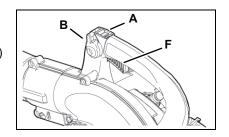
## NOTICE

Recoil starter: Use short pulls - only 1/2 - 2/3 of rope for starting. Do not allow the rope to snap back in. Always hold the unit firmly.

Note: If engine does not start after five pulls, use Cold Start Procedure.

## Stopping Engine

- Release throttle trigger (F). Move throttle position lever (B) forward to idle position and allow engine to return to idle before shutting off engine.
- Move stop switch (A) to STOP 2. position.



OPERATION ES-250

# **WARNING**

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

## Operating Blower

# **WARNING**

Always wear safety glasses, hearing protection and a face filter mask or serious personal injury may result. Do not point the blower pipe in the direction of people or pets.

## NOTICE

Use reduced speed only when performing light-duty tasks or to comply with local noise regulations. Continuous low speed operation may allow fuel/oil residue to build-up on the piston and cause rapid build-up of carbon on the spark arrester screen, resulting in overheating and engine damage. To reduce harmful build-up, run engine at



wide open throttle for at least 5 minutes every hour, and inspect/clean the spark arrester screen after approximately 40 hours of operation.

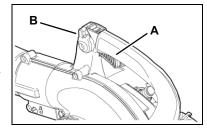
Read the Safety Section carefully.

## NOTICE

To avoid engine damage due to over-revving, do not block blower pipe.

- Use only during appropriate hours.
- Allow the engine to warm up at a fast idle for a few minutes.

 Control engine speed with throttle trigger (A), or for continuous use, set engine speed with throttle position lever (B). Rotate throttle position lever forward for lower speed, back for higher speed.



- Use lower speed to blow debris from hard surfaces.
- Additional speed may be necessary to clean debris, snow, etc. from lawns and flowerbeds.

Note: Never use a higher speed setting than necessary to perform a task. Remember, the higher the engine speed, the louder the blower noise. Minimize dust by using blower at lower speeds. Keep debris on your property. Be Smart - be a good neighbor.

## Shred 'N' Vac® Operation

## WARNING

Flying debris hazard. Never operate unit as a vacuum unless discharge elbow is installed and debris bag is securely cinched to elbow. Failure to follow instructions can result in serious injuries.

# **WARNING**

Debris bag is flammable and could be ignited if allowed to contact hot muffler cover or exhaust. Keep bag away from hot surfaces at all times.

OPERATION ES-250

 Adjust debris bag strap to support bag on operator's shoulder. Bag must not be folded at intake area, or intake will clog. Further adjustment may be necessary as the debris bag fills and becomes heavier.

- Grip throttle control handle with left hand, and lower handle/ stand with right hand.
- Operate unit with beveled end of tube facing downward. Keep tube opening close to material being vacuumed for best results.
- Empty bag when debris level reaches intake opening. To empty bag:
  - Move stop switch to STOP position and wait for blower to stop running.



- Loosen strap at elbow and slide bag off elbow. Open other end of bag, and empty contents.
- Close bag, and reattach to blower, secure bag with strap.

Note: Vacuum action works best at higher engine speeds. Do not use vacuum to pick up sticks, brush, rocks, etc. or other hard debris. Clear work areas with blower first, blowing light debris into a pile. Use attachment to vacuum pile.

## Shred 'N' Vac® Troubleshooting

Problem	Cause	Remedy
Unit runs, but does not vacuum or has	Elbow or debris bag clogged	Check elbow and debris bag, and clear as needed. Make sure bag is not folded over at intake during use.
poor suction	Obstructions in vacuum tube	Check vacuum tube, and remove obstructions. Avoid wet leaves.
Unit stopped suddenly during vacuuming, and now starter does not work	Object stuck in fan housing area	Remove vacuum tube and check fan area. Remove object.

Problem	Cause	Remedy
Unit jams repeatedly during use	Material being vacuumed too big or too hard for blades to shred	Use vacuum for leaves and small twigs, maximum 1/4 in. diameter x 3 in. long
Vacuum tube difficult to install or remove from unit	Tube/housing fit tight.	Apply small amount of soapy water to end of tube to ease assembly or removal. Turn tube 1/4 turn to loosen for removal.

### 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 of trouble-free service. Perform regular scheduled maintenance. If you are unsure about the task, or are not equipped with the necessary tools, we recommend that you take your unit to an Authorized Service Dealer for maintenance. To help you decide whether you want to do it yourself or have the Authorized Service Dealer do it, each maintenance task has been graded. If a task is not listed, see your Authorized Service Dealer for repairs.

## NOTICE

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

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#### 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 Authorized Service Dealer.

Click HERE or go to https://www.echo-usa.com/products/maintenance-kit or

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

#### **Maintenance Intervals**

COMPONENT/SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Daily or Before Use		
Air Filter	Inspect/Clean <sup>1</sup>	1
Choke Shutter	- IIISpect/Clean	
Fuel System	Inspect	
Cooling System	Inspect/Clean	2
Recoil Starter Rope	Inspect/Clean <sup>1</sup>	1
Screws/Nuts/Bolts	Inspect/Tighten/Replace <sup>1</sup>	
Every Refuel		
Fuel System	Inspect <sup>2</sup>	1
Cooling System	Inspect/Clean	2
3 Months		
Air Filter	Replace <sup>1</sup>	
Fuel Filter	Inspect <sup>1</sup>	1
Fuel Cap Gasket	Illapect	
Spark Plug	Inspect/Clean/Replace <sup>1</sup>	
Muffler Spark Arrester	1113pcot/Olean/INeplace	2
Cylinder Exhaust Port	Inspect/Clean/Remove carbon deposits	
Yearly	<u>,                                      </u>	•

COMPONENT/SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Fuel Filter	Inspect/Replace <sup>1</sup>	1
Fuel Cap Gasket	Replace <sup>1</sup>	•

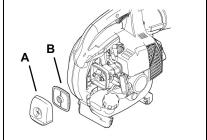
Note: Time intervals shown are maximum. Actual use and your experience will determine the frequency of required maintenance.

#### Air Filter

#### Level 1.

Parts Required: Tune up kit

- 1. Move the stop switch to STOP position.
- 2. Allow unit to cool (if required).
- 3. Remove spark plug lead from spark plug.
- 4. 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.
- 5. Remove air filter cover (A). Brush dirt from inside cover.
- Remove air filter (B) and lightly brush debris from filter. Replace filter if it is damaged. fuel soaked, very dirty, or the rubber sealing edges are deformed.



- 7. If filter can be reused, be certain it:
  - Fits tightly in the air filter cavity.
  - · Is installed with the original side out.
- 8. Install air filter (B).
- 9. Install air filter cover (A).
- 10. Install spark plug lead.

<sup>&</sup>lt;sup>1</sup> Replacement is recommended based on the finding of damage or wear during inspection.

<sup>&</sup>lt;sup>2</sup> Low evaporative fuel tanks do not require regular maintenance to maintain emission integrity.

#### **Fuel Filter**

Level 1.

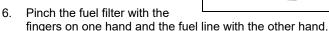
Parts Required: Tune up kit

## **A** DANGER

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

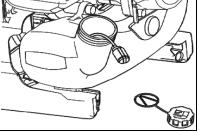
- 1. Move the stop switch to STOP position.
- 2. Allow unit to cool (if required).
- 3. Remove spark plug lead from spark plug.
- 4. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.
- Use the fuel line hook to pull the fuel line and filter from the tank.

Note: Do not remove the wire coil clamp to remove the fuel filter.



- 7. Pull and twist slightly to separate.
- 8 Install the new filter in reverse order
- 9. Install spark plug lead.

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 an un-certified replacement part.



## **Spark Plug**

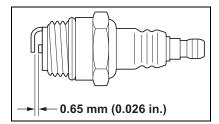
Level 2.

Parts Required: Tune up kit

## NOTICE

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

- 1. Move stop switch to STOP position.
- 2. Allow unit to cool (if required).
- 3. Remove spark plug lead from spark plug.
- 4. Remove spark plug and check for fouling, worn and rounded center electrode.
- 5. Clean the plug or replace with a new one. Do not sandblast to clean. Remaining sand will damage engine.
- 6. Adjust spark plug gap by bending outer electrode.



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- 7. Tighten spark plug to 150-170 kgf•cm (130-150 lbf•in).
- 8. Install spark plug lead.

## **Cooling System**

Level 2.

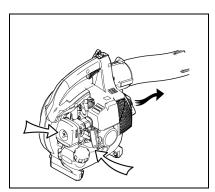
## NOTICE

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.



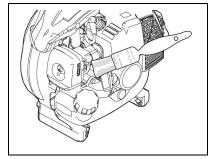
#### **Cleaning Grill**

- 1. Move stop switch to STOP position.
- 2. Allow unit to cool (if required).
- 3. Remove spark plug lead from spark plug.

## NOTICE

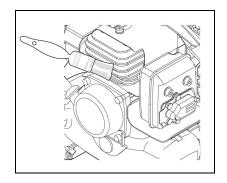
Use brush with nylon bristles to remove dirt from cylinder fins. Do not use a metal brush or metal scraper.

- Brush accumulated debris from crankcase intake grill above the fuel tank.
- Install spark plug lead.



#### Cleaning Cylinder Fins

- Move stop switch to STOP position.
- 2. Allow unit to cool (if required).
- 3. Remove spark plug lead from spark plug, and remove engine cover.



## NOTICE

Use brush with nylon bristles to remove dirt from cylinder fins. Do not use a metal brush or metal scraper.

- Clean cylinder fins to allow cooling air to pass freely. 4.
- 5. Assemble the components in reverse order.

#### Exhaust System

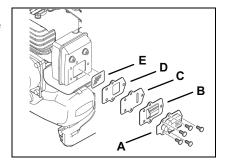
Spark Arrester Screen

Level 2.

Parts Required: Spark Arrester Screen, Gasket

Carbon deposits in muffler will cause a drop in engine output and overheating. Spark arrester screen must be checked periodically.

- 1. Move stop switch to STOP position.
- 2. Allow unit to cool (if required).
- 3. Remove spark plug lead from spark plug, and remove engine cover.
- Remove spark arrester cover (A), deflector (B), plate (C), gasket (D), and spark arrester screen (E) from muffler by removing screws. Replace screen if plugged with carbon deposits.



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

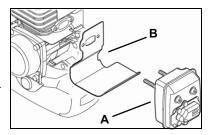
- 5. Clean carbon deposits from muffler components.
- 6. Install spark arrester screen, gasket, plate, deflector, cover and screws.
- 7. Install engine cover.
- Tighten all screws securely.
- 9. Attach spark plug lead.

#### **Exhaust Port Cleaning**

#### Level 2.

Parts Required: As needed: Heat Shield

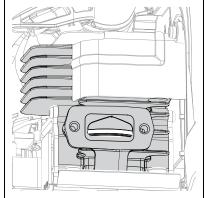
- 1. Move stop switch to STOP position.
- 2. Allow unit to cool (if required).
- Remove spark plug lead from spark plug, and remove engine cover.
- Place piston at top dead center. Remove muffler (A) and heat shield (B) by removing hardware.
- Use a wood or plastic scraping tool to clean deposits from cylinder exhaust port.



## **NOTICE**

Do not 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.

- 6. Inspect heat shield, and replace if damaged.
- 7. Install heat shield, muffler and hardware.
- 8. Tighten muffler mounting bolts (or nuts) to 70-80 kgf•cm (60-70 lbf•in).
- 9. Install engine cover.
- 10. Tighten all screws securely.
- 11. Attach spark plug lead.
- 12. Start engine, and warm to operating temperature.
- Stop engine, and re-tighten mounting bolts (or nuts) to specifications.



#### **Carburetor Adjustment**

#### **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, emission, and durability performance up to 1,100 feet above sea level (ASL) (96.0 kPa). To maintain proper engine operation and emission compliance above 1,100 feet ASL the carburetor <u>may</u> need to be adjusted by an authorized ECHO service dealer.

# NOTICE

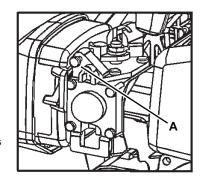
If the engine is adjusted for operation above 1,100 feet ASL, the carburetor must be re-adjusted when operating the engine below 1,100 feet ASL, otherwise severe engine damage may result.

#### Level 2

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 Service Dealer.

Before adjustment make sure that:

- Air filter is clean and properly installed.
- · Spark arrester screen is free of carbon.
- · Blower pipes are installed.
- 1. Start engine, run at idle for one minute.
- Complete warm up by running at full throttle for 5 minutes, operating choke twice to clear air from carburetor chambers.
- 3. 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.



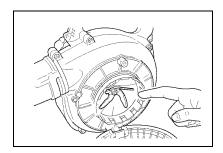
#### Shredder Blade

Level 1.

# **WARNING**

Never remove vacuum tube or open fan guard when Shred 'N' Vac<sup>®</sup> is running or serious personal injury may result. Always wear heavy-duty work gloves when working in shredder blade area.

- With engine stopped, remove spark plug wire, remove vacuum tube from unit.
- Remove accumulated debris from blade and inspect for damage.



# **NOTICE**

Do not operate Shred 'N' Vac<sup>®</sup> if shredder blade is damaged or broken. Return unit to ECHO Dealer for service.

Install vacuum tube. Refer to "Install Vacuum Tube and Bag Assembly" in assembly section for correct assembly procedures.

### **Debris Bag**

Level 1.

Shake dust from bag and inspect for hole or tears. Inspect zipper and clean debris from teeth to assure complete closing of zipper.



### **TROUBLESHOOTING**

# **A** DANGER

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

E	ENGINE PRO	BLEM TROUE	BLESHOOTING	CHART
Problem	Check	Status	Cause	Remedy
	Fuel at carbure-tor.	No fuel at carburetor.	Fuel strainer or fuel line obstructed.	Clean or replace. See your Authorized Service Dealer.
Engine starts		No fuel at cylinder.	Carburetor	See your Autho- rized Service Dealer.
hard or engine does not start.	Fuel at cylinder.	Muffler wet with fuel.	Fuel mixture too rich.	Open choke.  Clean or replace air filter.  Adjust carburetor.  See your Authorized Service Dealer.

E	NGINE PRO	BLEM TROUE	BLESHOOTING	CHART
Problem	Check	Status	Cause	Remedy
Engine starts hard or	Spark at end of plug wire.		Ignition at STOP position.  Electrical problem.  Interlock switch.	Move ignition away from STOP position. See your Authorized Service Dealer.
engine does not start.	Spark at plug.	No spark.	Incorrect gap. Covered with carbon. Fouled with fuel. Plug defective.	Adjust to 0.65 mm (0.026 in.) Clean or replace plug.
	Air filter	Air filter dirty.	Normal wear.	Clean or replace.
	Fuel filter	Fuel filter dirty.	Contami- nants or residue in fuel.	Replace filter or replace fuel.
Engine	Fuel vent	Fuel vent plugged.	Contami- nated fuel.	Clean or replace.
runs, but dies or engine does not	Spark plug	Plug dirty or worn.	Normal wear.	Clean and adjust or replace.
acceler- ate properly.	Carburetor	Improper adjustment.	Vibration	Adjust
ргоропу.	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 Autho- rized Service Dealer.

STORAGE ES-250

#### **STORAGE**

#### **Transportation**

- · Shut engine off before transporting.
- · Secure unit to prevent fuel spillage and damage.

### Short-Term Storage

- · Shut engine off.
- · Store unit in a dry, dust-free place, out of the reach of children.

### Long-Term Storage (Over 30 Days)

## A DANGER

Explosion hazard. Fuel fumes can accumulate and explode if exposed to an open flame or spark. Store in a well ventilated area.

Do not store your unit for a prolonged period of time (30 days or longer) without performing protective storage maintenance.

- 1. Move stop switch to STOP position.
- 2. Allow engine to cool.
- 3. Clean exterior of unit.
- Perform required maintenance.
- Tighten all fasteners.

# **▲** DANGER

Fire hazard. Fuel is flammable. Burning fuel will cause bodily injury or death. Wear protective equipment. Use care when mixing, storing or handling.

## **WARNING**

Burn hazard. 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.

6. Drain fuel tank completely.

X7531181802 © 12/25 ECHO Incorporated 7. Press purge bulb six to seven times to remove remaining fuel from carburetor then drain tank again.

- 8. Close choke, start and run the engine until it stops due to lack of fuel.
- 9. Allow engine to cool.
- 10. Remove spark plug lead from spark plug.
- 11. Remove spark plug from cylinder.
- 12. Pour 7 mL (0.25 fl. oz.) of two-stroke engine oil into cylinder through spark plug hole.
- 13. Pull recoil starter handle two to three times to distribute oil inside engine.
- 14. Observe 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.
- 15. Install spark plug.
- 16. Connect spark plug lead to spark plug.
- 17. Store unit in a dry, dust-free place, out of the reach of children.

### **SPECIFICATIONS**

MODEL	ES-250
Length	330 mm (13.0 in.) (without pipes)
Width	280 mm (11.0 in.)
Height	345 mm (13.6 in.)
Weight (dry)	4.3 kg (9.5 lb.)
Engine Type	Air-cooled, two-stroke, single cylinder gasoline engine
Bore	34.0 mm (1.34 in.)
Stroke	28.0 mm (1.1 in.)
Displacement	25.4 cc (1.55 in. <sup>3</sup> )
Exhaust	Spark arrester muffler or spark arrester muffler with catalyst
Carburetor	Diaphragm with purge pump
Ignition System	Flywheel magneto, capacitor discharge ignition type
Spark Plug	NGK BPM8Y Gap 0.65 mm (0.026 in.) NGK BPMR8Y in Canada
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	0.5 L (16.9 US fl. oz.)
Starter System	Automatic recoil starter, centrifugal type
Idle Speed	3,000 RPM
Wide Open Throttle Speed	7,100 RPM
Average Air Speed w/pipes (MPH)	62.6 m/sec (140 mph)
Maximum Air Speed w/ pipes (MPH)	73.76 m/sec (165 mph)
Air Volume	11.07 m <sup>3</sup> /min. (391 ft. <sup>3</sup> /min.)
Sound Level at 50 ft. dB(A) scale per ANSI B175.2	70 dB(A)

#### PRODUCT REGISTRATION

#### Thank you for choosing ECHO Power Equipment

Please go to <a href="http://www.echo-usa.com/Warranty/Register-Your-ECHO">http://www.echo-usa.com/Warranty/Register-Your-ECHO</a> 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.

ONLINE OPTION: Register online and save a stamp! You will be alerted of product updates and/or be sent new ECHO product information and special offers. Simply go to: www.echo-usa.com	ave a stamp! You w be sent new ECHO ers. Simply go to:	OPCION POR INTERNET: Registrese en la pagina web y ahorre una estampilla! Le alertararia sobre adualizaciones del producto ylo se le envira información sobre adualizaciones del producto ylo se le envira información sobre adualización sobre del aduación sobre envirante y la sobre envirante y la sobre envirante y la sobre envirante y la sobre envirante env	en la pagina web y actualizaciones del bre los nuevos pro- simplemente visite:	OPTION EN LIGNE: Enregister en ligne et épargner un limbre! Vous serez, informé sur les nouveaux produits ECHO et les mises à jour de produit ainsi que les offres spéciéles. Simplement visitez le: www.echo-usa.com	épargner un oduits ECHO es spéciales. .com
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Registering your purchase enables us to contact y owneship in the event of loss. : El registrar su cor come a favos de tiempo de sevició o la revocació. L'enregistrement de votre achat nous permettra di d'entretien ou de rappel du produit et vérifier que y	ou in the unlikely even mora nos permite estan on del producto y verific s vous contacter dans l vous étes le propriétain	Registering your purchase enables us to contact you in the unitkely event of a service update or product recall and verifies your ownership in the event of itses. Ell epiglar as comprete in ropation or unised to read on chaquer evento come al ansister de lempo de servico of a revocation de productory verificación de propiedade en caso de electro de servico of a revocación de productory verificación de propiedade en caso de electro de servico o la revocación de productory verificación de productor de servico de servico de servico de la revocación de productory verificación de servico de productor de contractor de contractor de la revocación de productor de la contractor de la co	☐ Ami/Famille ☐ Marque ECHO INC., 400 Oakwood Rd., Lake Zurich 1.800.432.ECHO WWW.ECHO-USA.COM	☐ Garantie	X7572270206 02-2012

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### **NOTES**

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