Operator's Manual
EA - 410
EARTH AUGER

⚠ 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.

X7504221201

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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/technical-documentation

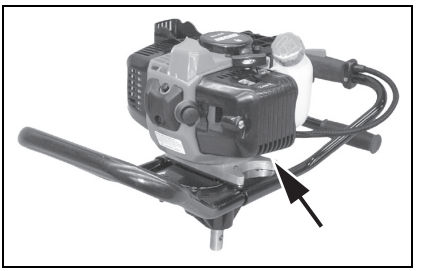
OR

https://www.shindaiwa-usa.com/technical-documentation

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SERVICING INFORMATION

Parts and Serial Number



Genuine ECHO parts and assemblies for your ECHO products are available only from an Authorized Service 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 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 Authorized Service Dealer, or by contacting ECHO Incorporated, 400 Oakwood Road, Lake Zurich, IL 60047, 1-800-432-ECHO (3246).

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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.

⚠ 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.

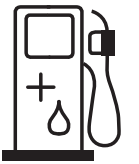
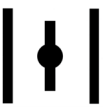
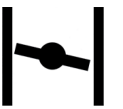
Note: This enclosed message provides tips for use, care and maintenance of the unit.



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

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International Symbols

Symbol	Description	Symbol	Description
	Warning, see operator's manual.		Carburetor Adjustment - high speed
	Wear eye, ear and head protection.		Carburetor Adjustment - idle speed
	Wear hand and foot protection.		Carburetor Adjustment - low speed
	Safety/Alert		Stop switch
	Hot surface		Fuel and oil mixture
	Avoid all power lines.		Plan retreat path from falling objects.
	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)

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Symbol	Description	Symbol	Description
	Keep feet and legs away from blade.		Maintain firm grip with both hands on auger during operation.
	Never operate auger In an area with underground electric, gas, water, or telephone lines.		

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.**

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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. 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.

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⚠ 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.

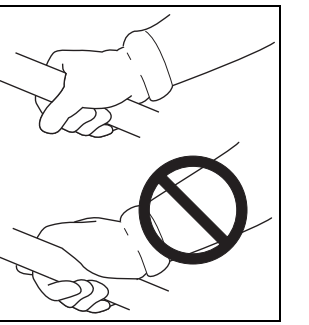
- Keep your body warm, especially the head, neck, feet, ankles, hands, and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks, and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the unit or other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

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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 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.

⚠ DANGER

Do not operate gas-powered products indoors or in inadequately ventilated areas. Engine exhaust contains poisonous emissions and can cause serious injury or death.

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Read the Manuals

- Provide all users of this equipment with literature for instructions on Safe Operation.

Clear the Work Area

- Review area to be augered. Beware of underground hazards such as electrical lines, gas lines, water mains, or cable and telephone lines.
- Never use ice auger without checking with local authorities for safe ice thickness in lakes, ponds, and rivers.
- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 3 m (10 ft.) while the unit is in use.
- If you are approached, stop the engine and cutting attachment.

Keep a Firm Grip

- Always hold throttle handle and support handle with thumbs and fingers tightly encircling the handles.
- Before starting the unit, equip yourself, and any person helping you, with the required protective equipment and clothing. Do not wear loose or baggy clothing while operating the auger.

Keep a Solid Stance

- Maintain footing and balance at all times. Do not stand on slippery, uneven or unstable surfaces. Do not work in odd positions or on ladders. Do not over reach.
- Keep cutting attachment below waist.
- Always keep hands, arms, legs, and feet clear of the rotating auger.

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.**
- **Check that the auger is firmly attached and in safe operating condition.**
- **Ice blades are very sharp. Wear gloves when handling or replacing.**
- **Have repairs done only by an Authorized Service Dealer.**

⚠ 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.

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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 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).



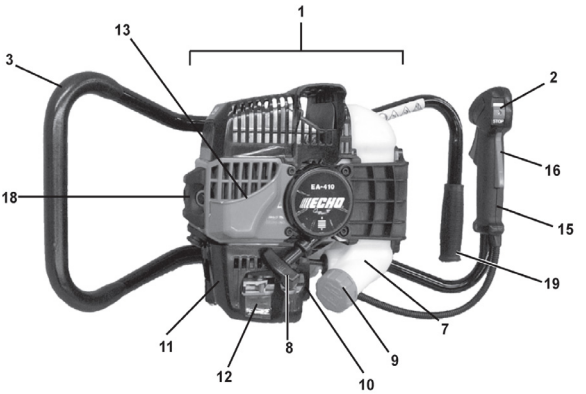
Product Emission Durability (Emission Compliance Period)

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.

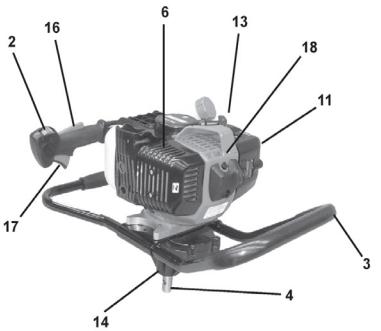
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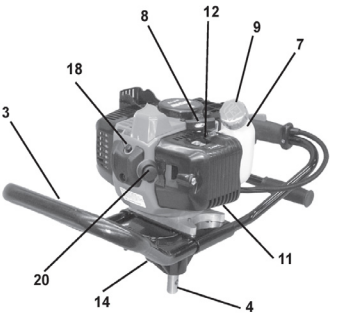
DESCRIPTION

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









Handle Label



Hot Label



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1. Power Head
2. Stop Switch
3. Support Handle
4. PTO Shaft
5. Auger Assembly
6. Spark Arrestor Muffler or Spark Arrestor Muffler with Catalyst
7. Fuel Tank
8. Recoil Starter Handle
9. Fuel Tank Cap
10. Purge Bulb
11. Air Cleaner
12. Choke
13. Air Deflector
14. Gear Case
15. Throttle Handle
16. Throttle Trigger Lockout
17. Throttle Trigger
18. Decompression Button
19. Lower Support Handle
20. Spark Plug

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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 / Handle / Gear Case Assembly

1 Operator's Manual

1 Warranty Statement

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ASSEMBLY

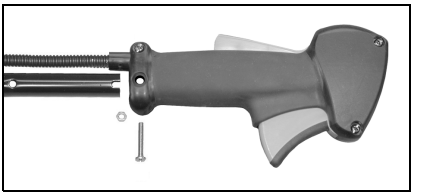
Throttle Handle Assembly

Parts Required: Throttle handle assembly, screw, hex nut.

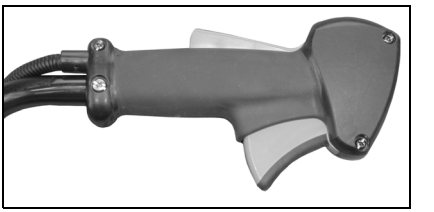
1. Cut and remove one white plastic shipping tie that secures handle assembly to packing materials.

Note: Do not cut or remove black plastic ties.

2. Remove mounting screw and hex nut from throttle handle assembly, and slide throttle handle onto mounting bar.



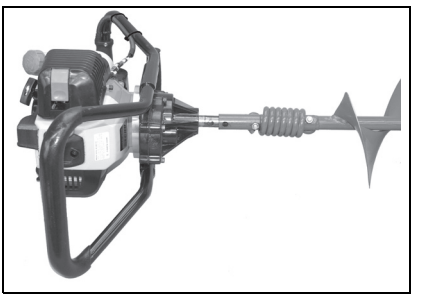
3. Align hole in throttle handle assembly with hole in bar.
4. Secure throttle handle to bar with screw and hex nut.
5. Tighten securely.



Auger Installation

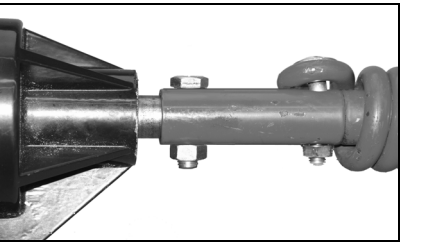
Parts Required: Auger blade assembly, Includes assembly hardware.

1. Carefully place engine on a flat surface with muffler side down.
2. Remove assembly hardware from auger.



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3. Slide auger assembly onto gear case PTO shaft.
4. Align PTO shaft mounting hole with auger mounting hole.
5. Secure auger to PTO shaft with hardware provided, and tighten securely.



Note: 6 in., 8 in., and 10 in. earth augers hardware style shown in illustration. 2 in., 3 in., and 4 in. earth augers and 8 in. and 10 in. ice augers use socket head screws only.

Auger Extension

Parts Required: Auger extension, 12 in. or 18 in. Includes assembly hardware.

⚠ WARNING

The muffler and area around the muffler may be extremely hot. Avoid contact with this area, otherwise serious injury may result.

⚠ WARNING

Never operate auger with handles above chest height, otherwise you could lose control, resulting in serious personal injury.

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1. Drill hole 38.0-50.8 cm (15-20 in.) deep into the ground. Stop engine, and clean off auger mounting bolt hardware.
2. Remove auger mounting hardware. Lift engine off auger, and set aside. The engine should be supported on the ground by the handles and PTO shaft.



3. Remove extension hardware.
4. Slide extension onto auger shaft, align holes, and install mounting hardware. Tighten securely.
5. Install engine on extension shaft and secure with hardware removed in step 2. Tighten securely.



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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.

⚠ WARNING

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

⚠ WARNING

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

Fuel

⚠ WARNING

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

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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 two-stroke 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.***
- ***Avoid repeated or prolonged skin contact.***
- ***Avoid inhaling oil mists or vapors.***

NOTICE

ECHO branded two-stroke oils may be mixed at a 50:1 ratio for application in all ECHO engines previously sold, regardless of the fuel-to-oil ratio specified in their manuals.

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Handling Fuel

⚠ DANGER

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.***

⚠ DANGER

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.

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Mixing Instructions

1. Fill an approved fuel container with half of the required amount of gasoline.
2. 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	cc
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.

NOTICE

Stored two-stroke fuel may separate. Always shake fuel container thoroughly before each use.

NOTICE

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

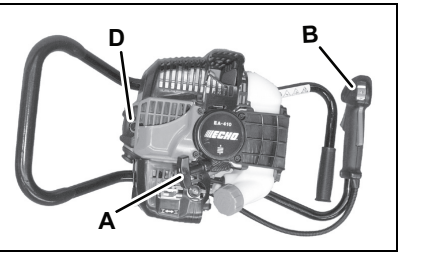
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Starting Cold Engine

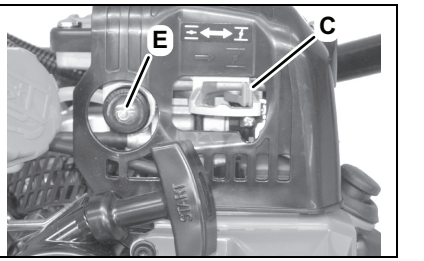
WARNING

The auger attachment should not rotate at idle. If attachment rotates, readjust carburetor according to "Carburetor Adjustment" instructions in this manual or see your ECHO Dealer, otherwise serious personal injury may result.

1. Place auger on flat surface, recoil starter handle (A) up.
2. Move stop switch button (B), away from the STOP position.



3. Move choke lever (C) to cold start position.
4. Press decompression button (D) once.
5. Pump purge bulb (E) until fuel is visible and flows freely in the clear fuel tank return line. Pump bulb an additional five times.



6. Hold support handle securely with one hand and pull the recoil starter handle (A) until engine fires. Do not hold engine by the throttle handle. Do not depress throttle trigger when starting.
7. Move the choke lever to the OPEN - RUN position. Restart engine if necessary and allow to warm up at idle for several minutes.

Note: After engine starts, engine decompression button will automatically reset for normal operation.

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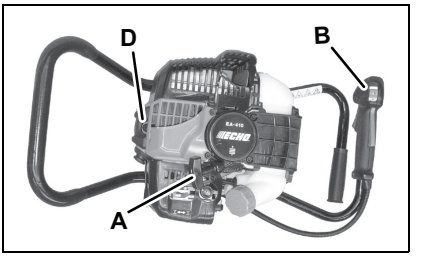
Starting Warm Engine

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

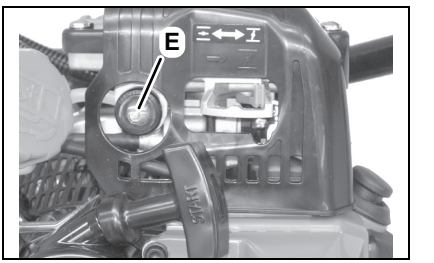
WARNING

When engine starts, the auger attachment may rotate, even with the throttle trigger in idle (released) position.

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



2. Pump purge bulb (E) until fuel is visible in the clear fuel return line.
3. Press decompression button (D) once.
4. Lay the unit on a flat, clear area, and pull the recoil starter handle (A) until the engine fires.



Note: If engine does not start after five pulls, follow Starting Cold Engine procedure.

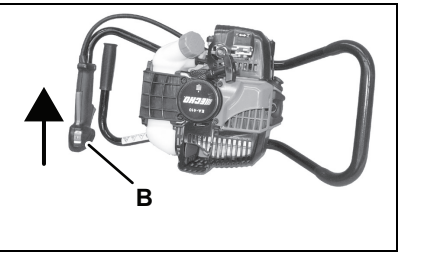
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Stopping Engine

WARNING

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

1. Allow engine to return to idle before shutting off engine.
2. Move stop switch button (B) to STOP position.



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Drilling

⚠ 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

Never operate auger with handles above chest height, otherwise you could lose control, resulting in serious personal injury.

⚠ WARNING

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

NOTICE

While drilling, the auger may twist suddenly and forcefully if it contacts large rocks, roots, or other hidden obstacles. Release throttle trigger immediately, and lift auger out of hole. Clear the obstacles to prevent damage, and then resume drilling.

NOTICE

Do not place excessive body weight on the unit. Allow auger to drill with a shaving action using light downward pressure.

NOTICE

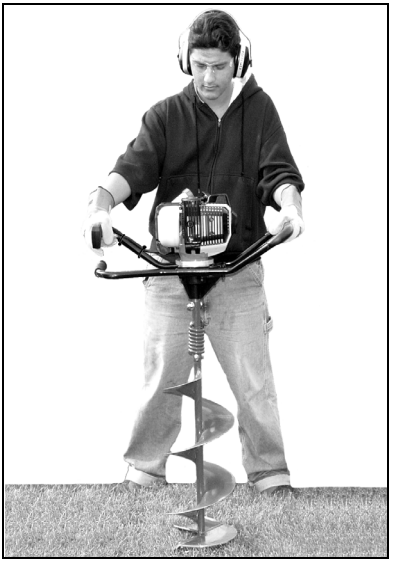
Do not use an ice auger in earth, or an earth auger in ice. A different style of auger is required for each type of drilling.

NOTICE

Do not operate unit in excessively rocky ground.

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1. With the engine running, position auger upright at desired drilling location.
2. Position feet for a stable stance, away from auger blades.
3. Firmly grip throttle handle and support handle.
4. Slowly squeeze throttle trigger to engage clutch and rotate auger. Apply light downward pressure on handles to drill the hole. Periodically, raise the auger to help clear drilling debris from the hole.



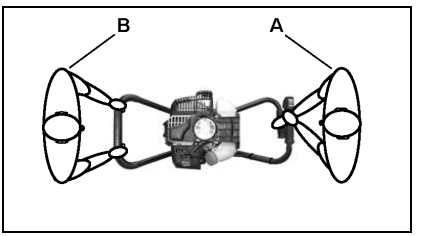
Note: Overloading the auger during drilling may cause it to stop turning. If this occurs, lift the auger to reduce the drilling load on the engine, and allow drilling debris to be augered out of the hole. Resume drilling.

Note: For holes 15.2 cm (6.0 in.) in diameter or larger, use two people.

Two Person Operation

Drilling holes 15.2 cm (6.0 in.) in diameter or larger may be easier if two people hold the handles on opposite sides.

The operator (A), guides the auger while gripping the throttle handle assembly and lower hand grip. The helper (B), assists by guiding auger while gripping loop handle on opposite side of auger.



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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 years 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.

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

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Maintenance Intervals

COMPONENT/SYSTEM	MAINTENANCE PROCEDURE	REQUIRED SKILL LEVEL
Daily or Before Use		
Air Filter	Inspect/Clean**	**1**
Choke Shutter		**1**
Fuel System	Inspect*	**1**
Cooling System	Inspect/Clean	**2**
Recoil Starter Rope	Inspect/Clean**	**1**
Screws/Nuts/Bolts	Inspect/Tighten/Replace**	**1**
Every Refuel		
Fuel System	Inspect*	**1**
3 Months		
Air Filter	Replace**	**1**
Fuel Filter	Inspect**	**1**
Fuel Cap Gasket		**1**
Spark Plug	Inspect/Clean/Replace**	**1**
Muffler Spark Arrestor		**2**
Cylinder Exhaust Port	Inspect/Clean/De-carbon	**2**
Gear Housing	None	**2**
Yearly		
Fuel Filter	Inspect/Replace**	**1**
Fuel Cap Gasket	Replace**	**1**

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

* 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.

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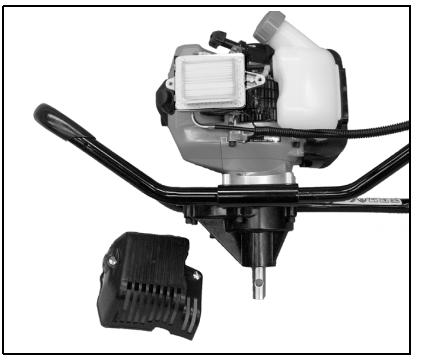
Air Filter

Level 1.

NOTICE

Actual replacement interval for air filter depends on operating conditions. Operation in dustier applications requires more frequent cleaning and replacement. Continued operation with a damaged or excessively dirty filter will allow dirt and debris to enter engine, and result in poor performance, rapid engine wear, and premature engine failure.

Parts Required: Tune-Up Kit.



1. Brush dirt off air cleaner area. Keep dirt away from engine and air intake grid.
2. Remove air filter cover. Brush dirt from inside cover and away from edges of air filter.
3. Check air filter seal for tight fit with air filter case.
4. Remove air filter from case. Use care to prevent dirt and debris from falling into air filter case.
5. Inspect filter element and seal. Replace filter if any of these issues are present:
   - Air filter seal does not fit tightly against case.
   - Air filter seal is distorted, worn, or damaged.
   - Air filter element has holes or other damage.
   - Air filter element is saturated with dirt.
   - Air filter element is soaked with fuel mix.

NOTICE

When using compressed air, always direct air stream at inside surface of filter so dust and debris will be blown out of filter. Keep air nozzle at least 6 inches away from filter to prevent damage to filter.

6. If air filter is in good condition and can be cleaned and reused, lightly brush debris from air filter element, or blow filter element clean using low pressure compressed air directed at inside of filter.
7. Install air filter in case and replace cover.

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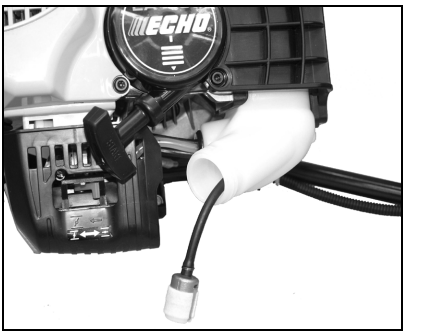
Fuel Filter

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.
2. Use a hook to pull the fuel line and filter from the tank.
3. Remove the filter from the line and install the new filter.

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.

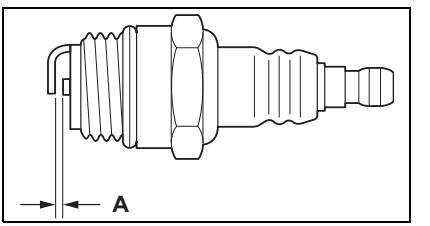
Spark Plug

Level 2.

Parts Required: Tune-Up Kit.

NOTICE

Use only NGK BPM7A spark plug (BPMR7A 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 sand blast to clean. Remaining sand will damage engine.

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3. Adjust the spark plug gap (A) by bending the outer electrode to 0.65 mm (0.026 in.).
4. Tighten spark plug to 150-170 kgf • cm (130-150 in • lbf).

Cooling System

Level 2.

NOTICE

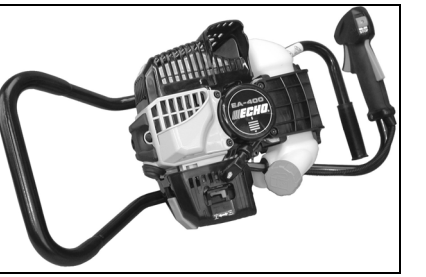
To maintain proper engine operating temperatures, cooling air must pass freely through the cylinder fin area. This flow of air carries combustion heat away from the engine.

NOTICE

Removal of cooling passage blockages or cleaning of cooling fins is considered Normal Maintenance. Any failure attributed to lack of maintenance is not covered by the warranty.

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.



1. Periodically blow dirt and debris off cooling fins with compressed air.
2. Remove engine and muffler covers, and brush off dirt and debris using a medium bristle brush.

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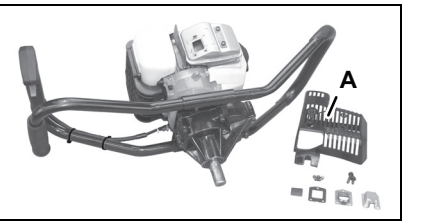
Exhaust System

Spark Arrestor Screen

Level 2.

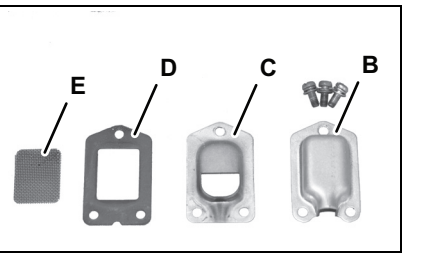
Parts Required: Spark arrestor screen and gasket.

1. Remove muffler cover (A).
2. Place piston at top dead center (TDC) to prevent carbon/dirt from entering cylinder.



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

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



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

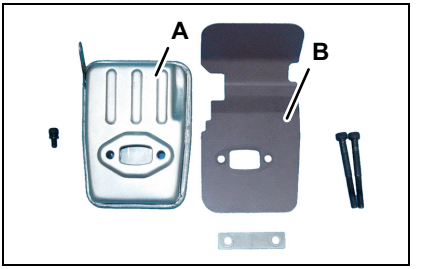
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Exhaust Port Cleaning

Level 2.

Parts Required: As needed: Heat shield.

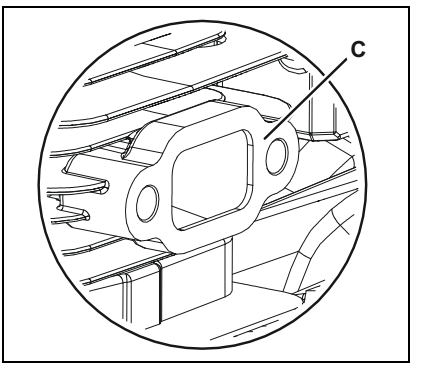
1. Remove spark plug lead from spark plug, and remove engine cover.
2. Place piston at top dead center (TDC). Remove muffler (A) and heat shield (B).



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 hardware to 95-130 in•lbf (110-150 kgf•cm).
7. Attach spark plug lead and install engine cover.
8. Start engine, and warm to operating temperature.
9. Stop engine, and ensure mounting hardware is within specifications.



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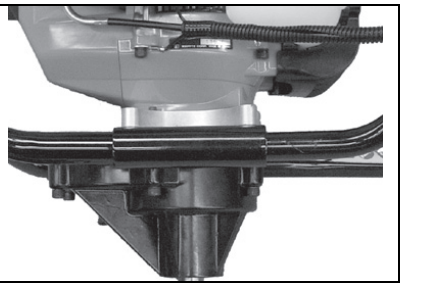
Gear Housing

Level 1.

NOTICE

If any damage is found, return unit to an authorized Echo dealer for repair.

1. Inspect gear housing for:
   - cracks in surface
   - leaks at joints, bearings, or seals
   - damage of any kind



Carburetor Adjustment

Level 2.

WARNING

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

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.***

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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

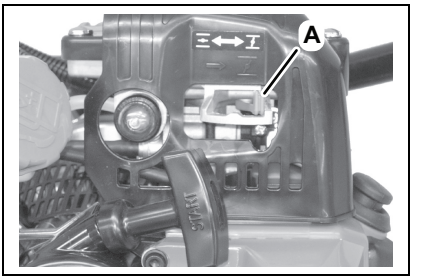
NOTICE

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.

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 may need to be adjusted by an authorized ECHO service dealer.

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 ECHO dealer.

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 screw (A):
   - clockwise to increase idle speed.
   - counter clockwise to decrease idle speed.



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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 Authorized Service Dealer.
	Fuel at cylinder.	No fuel at cylinder.	Carburetor	See your Authorized Service Dealer.
		Muffler wet with fuel.	Fuel mixture too rich.	Open choke. Clean or replace air filter. Adjust carburetor. See your Authorized Service Dealer.
	Spark at end of plug wire.	No spark.	Stop switch OFF. Electrical problem. Interlock switch.	Turn switch to ON. See your Authorized Service 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.

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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.
	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.			Internal engine problem.	See your Authorized Service Dealer.

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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)

⚠ 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.
4. Perform required maintenance.
5. 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.

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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.

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SPECIFICATIONS

MODEL	EA-410 E52113001001-E52113001702	EA-410 E52113001703-E52113999999
Length	585 mm (23.0 in.)	
Width	270 mm (10.6 in.)	
Height	370 mm (14.6 in.)	
Weight	9.8 kg (21.6 lb.)	
Engine Type	Air cooled, two-stroke, single cylinder gasoline engine	
Bore	40.0 mm (1.58 in.)	
Stroke	34.0 mm (1.34 in.)	
Displacement	42.7 cc (2.61 $in.^3$)	
Exhaust	Spark arrestor muffler or spark arrestor muffler with catalyst	
Carburetor	Diaphragm with purge pump	
Ignition System	Flywheel magneto, capacitor discharge ignition type	
Spark Plug	NGK BPM7A (BPMR7A in Canada) Gap 0.65 mm (0.026 in.)	
Fuel	Mixed (gasoline and two-stroke oil)	
Fuel/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	1.0 L (33.8 US fl. oz.)	0.92 L (31.1 US fl. oz.)
Starter System	Automatic rewind starter	
Clutch	Centrifugal type	
Vibration Isolated System	Cushioned left and right hand grips	
PTO Shaft	22 mm (0.875 in.) diameter	
Gear Case Ratio	30.2:1 reduction	
Auger Capacity	51-254 mm (2-10 in.)	

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MODEL	EA-410 E52113001001-E52113001702	EA-410 E52113001703-E52113999999
Rotation	Clockwise (viewed from top)	
Handle	Cushioned bow with grip	
Idle Speed	2,500 RPM	
Clutch Engagement Speed	3,600 RPM	
Wide Open Throttle Speed	10,600 RPM	

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Auger Accessories

	PART NUMBER	DESCRIPTION
Earth Auger *	99944900150	2-in. Earth Auger with point
	99944900160	3-in. Earth Auger with point
	99944900170	4-in. Earth Auger with point
	99944900180	6-in. Earth Auger with point and spring
	99944900190	8-in. Earth Auger with point and spring
	99944900200	10-in. Earth Auger with point and spring
Extension Shaft *	99944900210	18-in. Extension Shaft - 7/8 in. diameter
	99944900220	12-in. Extension Shaft - 7/8 in. diameter
Earth Auger Replacement Blades *	99944900230	4-in. Replacement Blade - Earth Auger
	99944900240	6-in. Replacement Blade - Earth Auger
	99944900250	8-in. Replacement Blade - Earth Auger
	99944900260	10-in. Replacement Blade - Earth Auger
	99944900270	2-in. Replacement Point- Earth Auger
Ice Augers *	99944900275	Replacement Point- Ice Auger
	99944900280	8-in. Ice Auger - Dual Blade
	99944900290	10-in. Ice Auger - Dual Blade
Ice Auger Replacement Blades *	99944900300	8-in. Replacement Blade - Ice Auger
	99944900310	10-in. Replacement Blade - Ice Auger
Auger Adapter	99944900335	Auger Adapter for 1 in. Auger mount
* All auger accessories include required assembly hardware.		

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PRODUCT REGISTRATION

Thank you for choosing ECHO Power Equipment

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

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

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

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

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

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

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

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

Confidential: Information provided will not be shared or sold

Purchaser's Name : Nombre del Comprador : Nom de l'acheteur

Address : Dirección : Adresse

City : Ciudad : Ville | *State : Estado : Province* | *Zip Code : Código Postal : Code Postal*

E-Mail Address : Dirección De Correo Electrónico : Courrier Électronique

Phone Number : Número De Teléfono : Téléphone | *Date of Purchase : Fecha de la Compra : Date de l'achat*

Where Purchased : Nombre del Almacén donde fue Comprado : Lieu d'achat

Model Number : Numero del Modelo : No. de modéle | *Serial Number : Numero de Serie : No. de série*

Registering your purchase enables us to contact you in the unlikely event of a service update or product recall and verifies your ownership in the event of loss. : El registrar su compra nos permite estar en contacto con usted en caso de cualquier evento como el aviso de tiempo de servicio o la revocación del producto y verificación de propiedad en caso de robo o pérdida. : L'enregistrement de votre achat nous permettra de vous contacter dans le cas improbable de modifications des instructions d'entretien ou de rappel du produit et vérifier que vous êtes le propriétaire en cas de vol ou de perte.

Primary use of tool: ☐ Professional ☐ Homeowner ☐ Rental Equip.
Uso primario de la herramienta: ☐ Profesional ☐ Dueño de casa ☐ Alquiler
Usage principal : ☐ Professionnel ☐ Residential ☐ Location

Do you wish to receive periodic ECHO product information and special offers by e-mail? ☐ Yes ☐ No
¿Desea usted recibir información periódica y ofertas especiales por correo electronico sobre el producto ECHO? ☐ Yes ☐ No
Souhaitez-vous recevoir périodiquement de l'information sur les produits ECHO et les offres spéciales par courrier électronique ? ☐ Oui ☐ Non

Did you visit the ECHO website before purchasing your product?
☐ Yes ☐ No
Visitó usted la pagina web ECHO antes de comprar su producto?
☐ Si ☐ No
Avez-vous visité le site d'ECHO avant de procurer votre produit?
☐ Oui ☐ Non

What factor(s) most influenced your purchase?

☐ Performance	☐ Price	☐ Dealer
☐ Reliability	☐ Prior Experience	☐ Quality
☐ Friend/Family	☐ Brand	☐ Warranty

¿Qué factor(es) influenció más en su compra?

☐ Funcionamiento	☐ Precio	☐ Distribuidor
☐ Confiabilidad	☐ Experiencia Anterior	☐ Calidad
☐ Amigo/Familia	☐ Marca	☐ Garantía

Quel facteur (facteurs) vous a influencé le plus?

☐ Performance	☐ Prix	☐ Marchand
☐ Fiabilité	☐ Expérience	☐ Qualité
☐ Ami/Famille	☐ Marque	☐ Garantie

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