



Operator's Manual TC-210 Tiller / Cultivator

WARNING

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

WARNING



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

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

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INTRODUCTION

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



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



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

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



OR

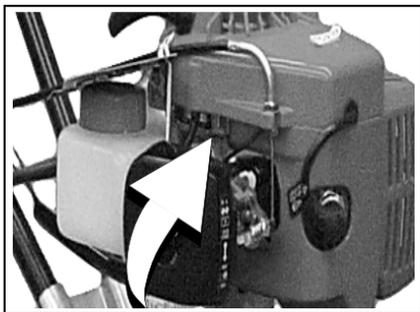
<https://www.shindaiwa-usa.com/manuals>



SERVICING INFORMATION

Parts and Serial Number

Genuine ECHO parts and assemblies for your ECHO products are available only from an Authorized ECHO Dealer. When you do need to buy parts, always have the model number and serial number of the unit with you. For future reference write them in the space provided below.



Model No. _____ Serial No. _____

Service

Service of this product during the warranty period must be performed by an Authorized ECHO Service Dealer. For the name and address of the Authorized ECHO Service Dealer nearest you, ask your retailer or call: 1-800-432-ECHO (3246). Dealer information is also available on our Web Site www.echo-usa.com. When presenting your unit for Warranty service/repairs, proof of purchase is required.

ECHO Consumer Product Support

If you require assistance or have questions concerning the application, operation, or maintenance of this product, call the ECHO Consumer Product Support Department at 1-800-432-ECHO (3246) from 8:00 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 www.echo-usa.com or by filling out the product registration sheet included in this manual. Registering your product confirms warranty coverage and provides a direct link to ECHO if we find it necessary to contact you.

Additional Literature

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

SAFETY

Manual Safety Symbols and Important Information

Throughout this manual and on the product itself, you will find safety alerts and helpful, informational messages preceded by symbols or key words. The following is an explanation of those symbols and key words and what they mean to you.

DANGER

The safety alert symbol accompanied by the word “DANGER” calls attention to an act or condition which WILL lead to serious personal injury or death if not avoided.

WARNING

The safety alert symbol accompanied by the word “WARNING” calls attention to an act or condition which CAN lead to serious personal injury or death if not avoided.

CAUTION

The safety alert symbol accompanied by the word “CAUTION” calls attention to an act or condition which might lead to minor or moderate personal injury if not avoided.

NOTICE

The enclosed message provides information necessary for the protection of the unit.

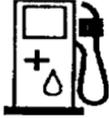
Note: This enclosed message provides tips for use, care and maintenance of the unit.

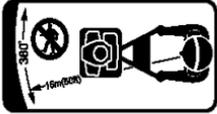


CIRCLE AND SLASH SYMBOL

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

International Symbols

Symbol	Description	Symbol	Description
	Warning, See Operator's Manual	H	Carburetor Adjustment - High Speed Mixture
	Wear Eye, Ear and Head Protection	T	Carburetor Adjustment - Idle Speed
	Wear Hand and Foot Protection	L	Carburetor Adjustment - Low Speed Mixture
	Safety/Alert		Emergency Stop
	Hot Surface		Fuel and Oil Mixture
	Finger severing		Avoid all power lines
	DO NOT operate with kick stand down		Wear slip resistant foot wear
	DO NOT Allow Flames or Sparks Near Fuel		Ignition ON / OFF
	DONOT Smoke Near Fuel		Primer Bulb

Symbol	Description	Symbol	Description
	Choke Control "RUN" Position (Choke Open)		Choke Control "COLD START" Position (Choke Closed)
	Keep away from rotating tines.		Carry unit with carry handle.
		Keep Bystanders and Helpers Away 15 m (50 ft.).	



LOOK BEFORE YOU PUMP!
Ethanol Percentage

0% - 10%	15% - 30% - 50% - 85%
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USE E10 OR LESS FUEL

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

Personal Condition and Safety Equipment

WARNING

Cancer and Reproductive Harm
www.P65Warnings.ca.gov

WARNING



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 can be worn over safety glasses or goggles to provide protection from sharp branches or flying debris.

Hand Protection

Wear sturdy, no-slip, rubber work gloves to improve your grip on the handles. Gloves also provide protection against cuts and scratches, cold environments, and reduce the transmission of machine vibration to your hands.

Hearing and Ear Protection

ECHO recommends wearing personal protective equipment whenever unit is used.

Breathing Protection

Operators who are sensitive to dust or other common airborne allergens may need to wear a dust mask to prevent inhaling these materials while operating unit. Dust masks can provide protection against dust, plant debris, and other plant matter such as pollen. Make sure the mask does not impair your vision, and replace the mask as needed to prevent air restrictions.

Proper Clothing

Wear snug-fitting, durable clothing:

- Pants should have long legs, shirts should have long sleeves.
- DO NOT WEAR SHORTS.
- DO NOT WEAR TIES, SCARVES, JEWELRY, or clothing with loose or hanging items that could become entangled in moving parts or surrounding growth.
- Keep clothing buttoned or zipped, and keep shirt tails tucked in.
- Wear sturdy work shoes with nonskid rubber soles.
- DO NOT WEAR OPEN TOED SHOES.
- DO NOT OPERATE UNIT WITH BARE FEET.

Keep long hair away from engine and air intake. Retain hair with cap or net.

Heavy protective clothing can increase operator fatigue, which may lead to heat stroke. Schedule heavy work for early morning or late afternoon hours when temperatures are cooler.

 **WARNING**

The components of this machine generate an electromagnetic field during operation, which can interfere with some pacemakers. To reduce the risk of serious or fatal injury, persons with pacemakers should consult with their physician and the pacemaker manufacturer before operating this machine. In the absence of such information, ECHO does not recommend the use of this machine by anyone who has a pacemaker.

Extended Operation and Extreme Conditions **CAUTION**

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

It is believed that a condition called Raynaud's Phenomenon, which affects the fingers of certain individuals, may be brought about by exposure to vibration and cold. Exposure to vibration and cold may cause tingling and burning sensations, followed by loss of color and numbness in the fingers. The following precautions are strongly recommended, because the minimum exposure, which might trigger the ailment, is unknown.

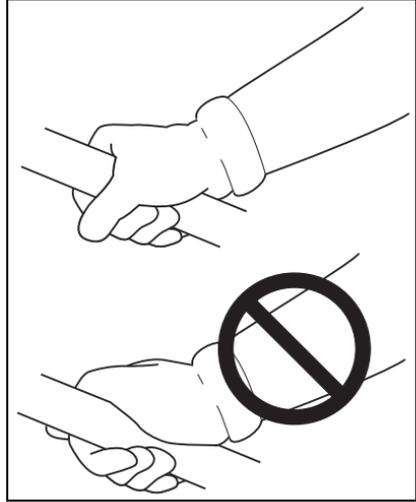
- Keep your body warm, especially the head, neck, feet, ankles, hands, and wrists.
- Maintain good blood circulation by performing vigorous arm exercises during frequent work breaks, and also by not smoking.
- Limit the hours of operation. Try to fill each day with jobs where operating the unit or other hand-held power equipment is not required.
- If you experience discomfort, redness, and swelling of the fingers followed by whitening and loss of feeling, consult your physician before further exposing yourself to cold and vibration.

Repetitive Stress Injuries (RSI)

It is believed that overusing the muscles and tendons of the fingers, hands, arms, and shoulders may cause soreness, swelling, numbness, weakness, and extreme pain in those areas. Certain repetitive hand activities may put you at a high risk for developing a Repetitive Stress Injury (RSI). An extreme RSI condition is Carpal Tunnel Syndrome (CTS), which could occur when your wrist swells and squeezes a vital nerve that runs through the area. Some believe that prolonged exposure to vibration may contribute to CTS. CTS can cause severe pain for months or even years.

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

- Avoid using your wrist in a bent, extended, or twisted position. Instead try to maintain a straight wrist position. Also, when grasping, use your whole hand, not just the thumb and index finger.
- Take periodic breaks to minimize repetition and rest your hands.
- Reduce the speed and force with which you do the repetitive movement.
- Do exercises to strengthen the hand and arm muscles.
- Immediately stop using all power equipment and consult a doctor if you feel tingling, numbness, or pain in the fingers, hands, wrists, or arms. The sooner RSI/CTS is diagnosed, the more likely permanent nerve and muscle damage can be prevented.



! DANGER

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

! 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.

To Avoid Injury:

- Read and understand the OPERATOR'S MANUAL..
- Know location and functions of all controls.
- Never allow children or uninstructed adults to operate the unit.
- Keep bystanders and animals a minimum of 15m (50 ft.) away while operating unit.
- Keep away from rotating parts.
- Do not hold or carry unit in a manner that will permit tines to contact body parts or clothing.
- Refer to Operator's Manual for correct carrying instructions.
- BEFORE OPERATION, refer to your Operator's Manual for proper operating techniques.
- Always empty the fuel tank before carrying unit in a car or truck. To avoid damage to engine parts always lay unit on its muffler side.

Avoid Hot Surfaces

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

**Equipment****! WARNING**

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

- ◆ Check unit for loose/missing nuts, bolts, and screws. Tighten and/or replace as needed.
- ◆ Inspect shield for damage and that shield is securely in place. Replace if shield is damaged or missing.
- ◆ Check that the tines are firmly attached and in safe operating condition.

 **WARNING**

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

- ◆ ***ALWAYS stop engine, disconnect spark plug, and make sure all moving parts have come to a complete stop before removing obstructions, clearing debris, or servicing unit.***
- ◆ ***DO NOT start or operate unit unless all guards and protective covers are properly assembled to unit.***
- ◆ ***NEVER reach into any opening while the engine is running. Moving parts may not be visible through openings.***

 **WARNING**

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

EMISSION CONTROL (EXHAUST & EVAPORATIVE)

EPA Emissions Control Information

The emission control system for the engine is EM (engine modification) and, if the second to last character of the Engine Family on the Emission Control Information label (see example) is "B", "C", "K", or "T", the emission control system is EM and TWC (3-way catalyst). The fuel tank/fuel line emission control system is EVAP (evaporative emissions).

EMISSION CONTROL INFORMATION

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

YAMABIKO CORP.

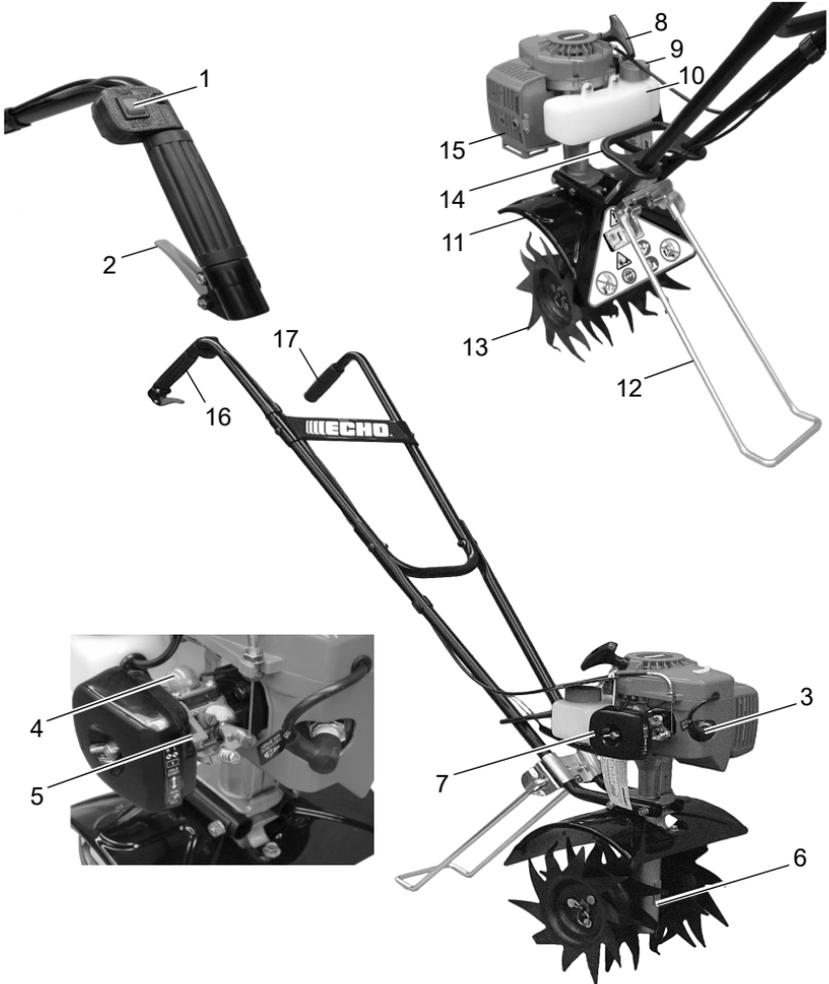
An Emission Control Label is located on the engine. (This is an EXAMPLE ONLY, information on label varies by engine FAMILY).

Product Emission Durability (Emission Compliance Period)

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

DESCRIPTION

Locate the safety decal(s) 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.



1. Stop switch
2. Throttle trigger
3. Spark plug
4. Purge bulb
5. Choke
6. Gear box
7. Air filter
8. Recoil starter handle
9. Fuel tank cap
10. Fuel tank
11. Tine guard
12. Kick stand
13. Tines
14. Plastic carrying handle
15. Spark arrester muffler or spark arrester muffler with catalyst
16. Throttle handle - for right hand
17. Support handle - for left hand

CONTENTS

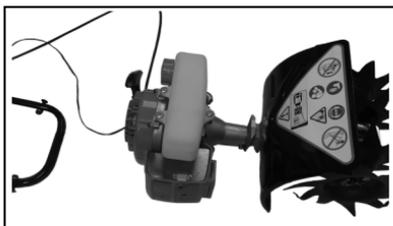
The ECHO product you purchased has been factory pre-assembled for your convenience. Due to packaging restrictions, some assembly may be necessary.

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.

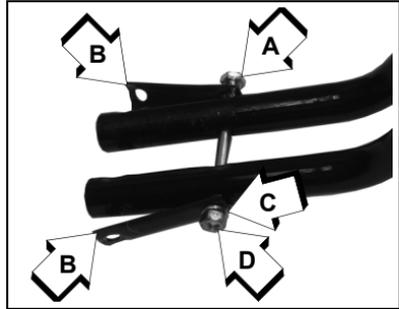
- 1 Power head / shield assembly
- 1 Upper handle assembly
- 1 Lower handle / kick stand assembly
- 2 Lower handle mounting eye plates
- 1 Operator's manual
- 1 Warranty statement
- 2 3-1/4 in. x 1/4 in. carriage bolts
- 2 1/4 in. lock washers
- 2 1/4 in. lock nuts
- 1 Plastic carry handle
- 2 Cable clips

ASSEMBLY

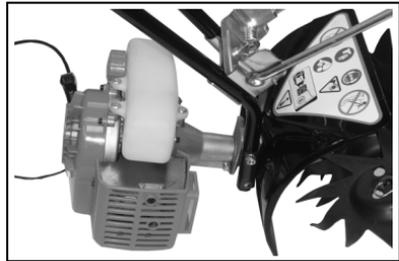
1. Lay power head assembly down so that shield label faces upward. Place top handle assembly to front.



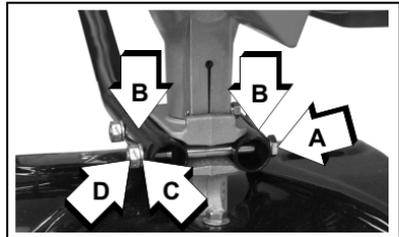
- Loosely assemble lower handle/kick stand assembly using carriage bolt (A), eye plates (B), lock washer (C) and locknut (D) in rear assembly holes as shown.



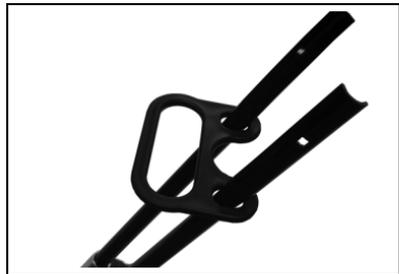
- Slide lower handle assembly under power head and position in mounting groove.



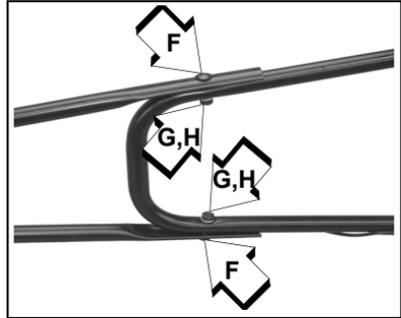
- Assemble carriage bolt (A), eye plates (B), lock washer (C), and locknut (D) in front handle mounting holes. **DO NOT TIGHTEN BOLTS.**



- Slide plastic carry handle onto lower handle tubes.



6. Remove carriage bolts (F), lock washers (G), and nuts (H) from top handle assembly.
7. Place top handle assembly between lower handles, align mounting holes (F), lock washers (G), and nuts (H). Carriage bolts must be installed from the outside through square holes in the lower handle, then through upper handle tube.
8. Securely tighten lower handle bolts first, then the upper handle bolts.



NOTICE

Assure throttle cable is not twisted or wrapped around upper or lower handle.

9. Stand unit up.
10. Secure throttle linkage and stop switch lead midway on right upper and lower handle with cable clips.



! WARNING

Never perform tilling or cultivating while kick stand is in down position, otherwise serious injury may result.

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.

 WARNING

- ◆ 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.

Fuel

WARNING

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

Fuel Requirements

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

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

WARNING

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

- ◆ **KEEP OUT OF REACH OF CHILDREN.**
- ◆ **If swallowed, do not induce vomiting. CALL PHYSICIAN OR A POISON CONTROL CENTER IMMEDIATELY.**
- ◆ **WEAR SAFETY GLASSES when mixing or handling.**

- ◆ **AVOID** repeated or prolonged skin contact.
- ◆ **AVOID** inhaling oil mists or vapors.

NOTICE

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

Handling Fuel

DANGER

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

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

Mixing Instructions

NOTICE

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

1. Fill an approved fuel container with half of the required amount of gasoline.
2. Add the proper amount of 2-stroke 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 locations may require the use of automatic fuel shut-off containers to reduce fuel spillage.

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

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

NOTICE

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

NOTICE

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

Starting Cold Engine

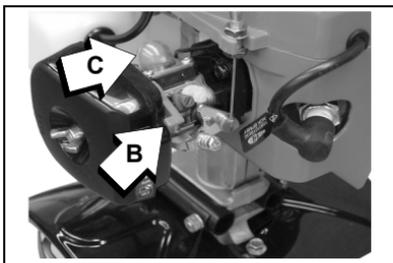
WARNING

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

1. Lay the unit on a flat area and keep movable attachment parts clear of all obstacles.
2. **Stop Switch**
Move stop switch button (A) to RUN position.

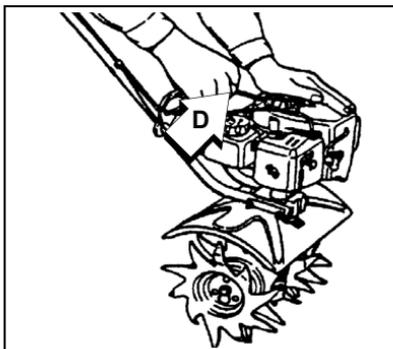


3. **Choke**
Move choke lever (B) to Cold Start Position (). Throttle must remain at idle for starting.
4. **Purge Bulb**
Pump purge bulb (C) 5-10 times until fuel is visible and flows freely in the clear fuel tank return line.

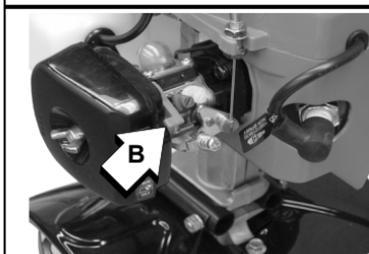


5. *Recoil Starter*

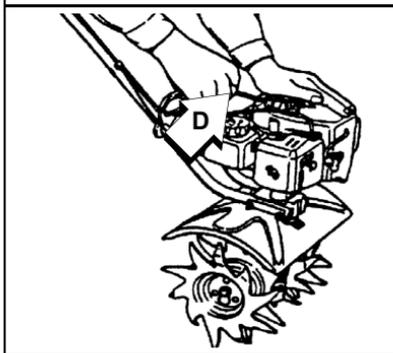
Firmly hold unit down. Pull recoil starter handle/rope (D) until engine fires, or a maximum of three (3) pulls.

6. *Choke*

Move choke lever (B) back to Run (↓) position.

7. *Recoil Starter*

Pull recoil starter handle/rope (D) until engine starts and runs, or a maximum of 10 pulls.



NOTICE

If engine does not start with choke in Run position after 10 pulls, engine may be flooded. Allow unit to stand for one minute. Assure choke remains in Run (↓) position and pull starter handle/rope an additional 10-15 times, or until engine starts and runs.

8. After starting the engine, allow unit to warm up at idle for 2-3 min.

9. *Throttle Trigger*

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

Starting Warm Engine

The starting procedure is the same as Cold Start except DO NOT close the choke.

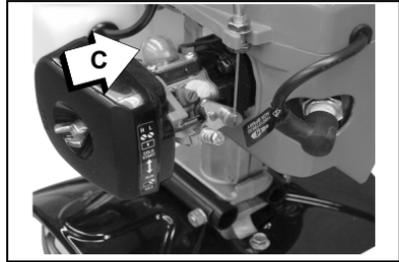
1. Stop Switch

Move stop switch button (A) to RUN position.



2. Purge Bulb

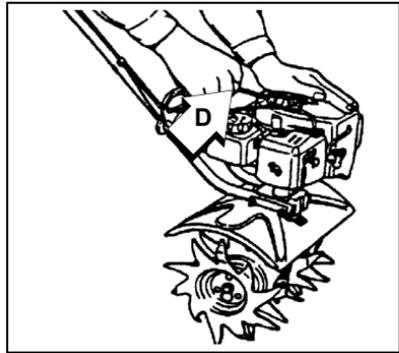
Pump purge bulb (C) until fuel is visible in the "Clear" fuel return line. Pump bulb an additional 4 or 5 times.



3. Recoil Starter

Firmly hold unit down. Pull recoil starter handle/rope (D) until engine starts and runs, or a maximum of five (5) pulls.

Note: If engine does not start after 5 pulls, use Cold Start Procedure.



Stopping Engine

1. *Throttle Trigger*
Release throttle trigger (E) and allow engine to return to idle before shutting off engine.
2. *Stop Switch*
Move stop switch button (A) backward to STOP position.



WARNING

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

Tilling/Cultivating

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

Do not operate this unit indoors or in inadequately ventilated areas.

- Carry unit to tilling/cultivating area using plastic carry handle and upper handle. Avoid contact with tines or hot engine.



- Check the area to be tilled or cultivated. Look for any hazards and obstructions that could contribute to unsafe conditions.
- Remove all rocks, debris, and other materials that could become jammed in the tines.
- Do not till or cultivate in areas where there may be hidden hazards, such as sprinkler heads and pipes, buried power cables or gas lines, or other similar hazards.

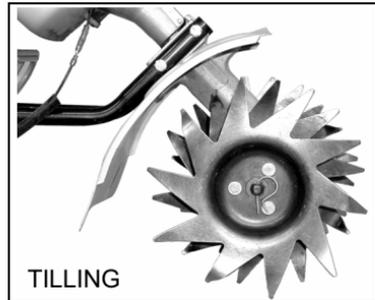


- Start the unit as shown in “Starting” instructions.
- Hold unit securely. Always grip support handle with left hand, and throttle handle with right hand.
- Depress throttle trigger gradually to begin operation.
- Release throttle trigger to stop tines.
- Allow engine to return to idle, and move switch to “Stop” position to stop engine.

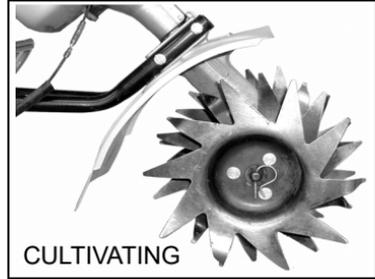
TILLING - Recommended tilling depth is 15-20 cm (6 - 8 inches).

Install Tines with individual tines angled forward, toward front of unit. (See Tine Removal / Cleaning / Installation).

- Use a forward/backward motion to till soil. Allow tines to dig into soil, then pull unit back to break up and pulverize clumps. Tilling depth is controlled by the number of times the forward/backward motion is used in an area.
- Controlling tilling depth:
 - Shallow tilling: Move tiller over soil surface quickly. Tines should be in cultivating position.
 - Deeper tilling: Move tiller over soil slowly. Allow tiller to work the same area until desired depth is reached.
 - Big Weeds / Tough Roots: Rock tiller back and forth over tough spot until the tines slice through the roots or weeds.



- Digging Holes: Hold tiller in place, and allow tines to dig down into the soil. Allow tines to dig approximately 6 – 8 inches deep, then lift unit up and out. Remove loose soil with shovel or rake. Resume digging with rotating tiller tines until desired depth is reached.
- CULTIVATING – Recommended cultivating depth is 5-7.5 cm (2 – 3 inches). Install Tines with individual tines angled rearward, toward the operator.



(See Tine Removal / Cleaning / Installation) Allow unit to move forward slowly. Pull unit back to cut vegetation and cultivate soil to desired depth. Repeat forward/backward motion as needed.

MAINTENANCE

⚠ WARNING

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

⚠ WARNING

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

Your unit is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your unit achieve that goal. If you are unsure or are not equipped with the necessary tools, we recommend that you take your unit to a Servicing Dealer for maintenance. To help you decide whether you want to do it yourself or have the Dealer do it, each maintenance task has been graded. If the task is not listed, see your Dealer for repairs.

NOTICE

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

Skill Levels

Level 1 = Easy to do. Common tools may be required.

Level 2 = Moderate difficulty. Some specialized tools may be required.

Level 3 = See your dealer.

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

or

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

Maintenance Intervals

COMPONENT/SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Daily or Before Use		
Air Filter	Inspect/Clean *	1
Choke Shutter	Inspect/Clean *	1
Fuel System	Inspect ²	1
Cooling System	Inspect/Clean	2
Recoil Starter Rope	Inspect/Clean *	1
Screws/Nuts/Bolts	Inspect/Tighten/Replace *	1
Tines	Inspect/Clean	1
Every Refuel		
Fuel System	Inspect ²	1
3 Months		
Air Filter	Replace *	1
Fuel Filter	Inspect *	1
Fuel Cap Gasket	Inspect *	1
Spark Plug	Inspect/Clean/Replace *	1
Muffler Spark Arrester	Inspect/Clean/Replace *	2
Cylinder Exhaust Port	Inspect/Clean/De-carbon	2

COMPONENT/SYSTEM	MAINTENANCE PROCEDURE	SKILL LEVEL
Gear Housing	Gr ease ¹	2
Yearly		
Fuel Filter	Inspect/Replace *	1
Fuel Cap Gasket	Replace *	1

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

MAINTENANCE PROCEDURE NOTES:

¹ Apply lithium-based grease every 25 hours of use.

² Low evaporative fuel tanks DO NOT require regular maintenance to maintain emission integrity.

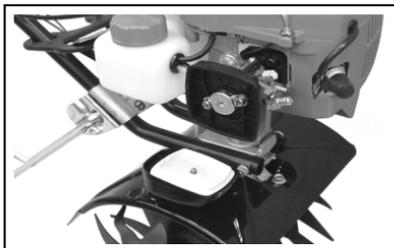
* Replacement is recommended based on the finding of damage or wear during inspection.

Air Filter

Level 1.

Parts required: Tune up Kit.

- Close choke (Cold Start Position []). This prevents dirt from entering the carburetor throat when the air filter is removed. Brush accumulated dirt from air cleaner area.
- Remove air filter cover. Brush dirt from inside cover.
- Remove air filter and lightly brush debris from filter. Replace filter if it is damaged, fuel soaked, very dirty, or the rubber sealing edges are deformed.
- If filter can be reused, be certain it:
 - Fits tightly in the air filter cavity.
 - Is installed with the original side out.
- Install air filter cover.



Note: Carburetor adjustment may be needed after air filter cleaning/replacement. See Carburetor Adjustment Section.

Fuel Filter

Level 1.

Parts required: Tune up Kit.

DANGER

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

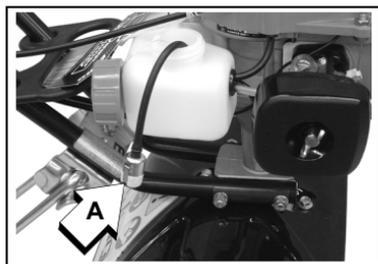
1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.
2. Pull the fuel filter from the fuel tank.

NOTICE

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

3. Remove the filter (A) 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

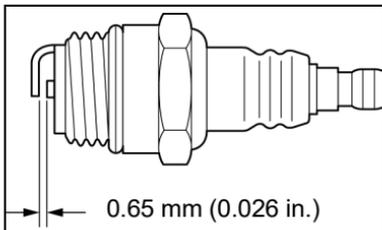
Level 2.

Parts required: Tune up Kit.

NOTICE

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

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



Cooling System

Level 2.

NOTICE

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

Overheating and engine seizure can occur when:

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

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

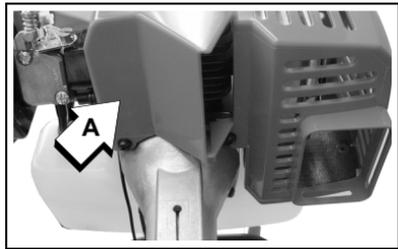
1. Remove throttle cable end from the carburetor swivel.
2. Remove starter cover.

Note: The throttle cable remains assembled to the starter cover.

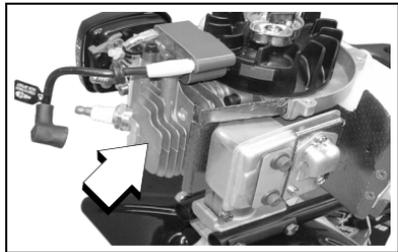
3. Disconnect spark plug lead.



4. Remove cylinder cover (A).



5. Use brush to remove dirt from the cylinder fins.



NOTICE

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

6. Assemble components in reverse order.

Note: When installing the cylinder cover, be certain the muffler gasket tabs are locked into the muffler grill slots and the stop switch lead is seated in the relief notch.

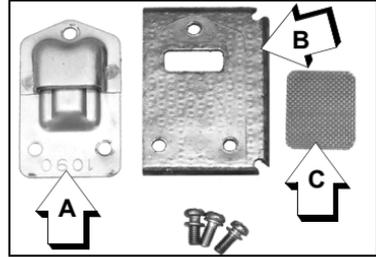
Exhaust System

Spark Arrester Screen

Level 2.

Parts required: Spark Arrester Screen, Gasket.

1. Remove starter cover and cylinder cover.
2. Remove exhaust guide (A), gasket (B), and screen (C) from muffler body.
3. Clean carbon deposits from muffler components.



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

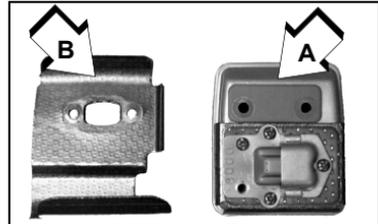
4. Replace screen if it is cracked, plugged, or has holes burned through.
5. Assemble components in reverse order.

Exhaust Port Cleaning

Level 2.

Parts required: Heat Shield.

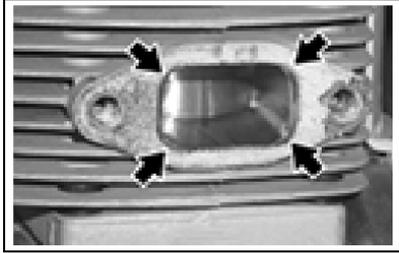
1. Remove spark plug lead from spark plug, and remove engine cover.
2. Place piston at top dead center. Remove muffler (A) and heat shield (B).
3. Use a wood or plastic scraping tool to clean deposits from cylinder exhaust port.



NOTICE

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

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



Carburetor Adjustment

Level 2.

Engine Break-In

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

High Altitude Operation

This engine has been factory adjusted to maintain satisfactory starting, emission, and durability performance up to 330 m (1,100 ft.) above sea level (ASL) (96.0 kPa). To maintain proper engine operation and emission compliance above 330 m (1,100 ft.) ASL the carburetor may need to be adjusted by an authorized ECHO service dealer.

NOTICE

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

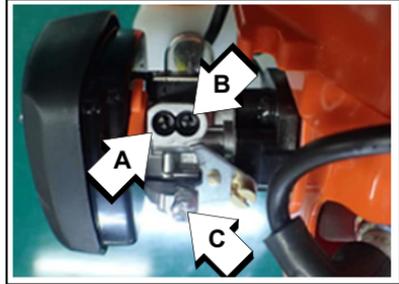
Note: Every unit is run at the factory and the carburetor is set in compliance with emission regulations. In addition, the carburetor is equipped with HI (A) and LO (B) needle adjustment limiters that prevent settings outside acceptable limits.

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.

WARNING

Sharp rotating tines! Do not allow tines to touch anything during carburetor adjustment. Contact with revolving tines will cause severe injury.

1. Before adjusting the carburetor, clean or replace the air filter and spark arrester screen.
2. Start engine and run for several minutes to reach operating temperature.
3. Stop engine. Turn HI (A) speed needle CCW (counterclockwise) to stop. Turn LO (B) speed needle midway between full CCW and CW (clockwise) stops.



4. **Idle Speed Adjustment**
Start engine and turn idle speed adjustment screw (C), CW until the tines begin to turn, then turn the screw CCW until tines stop turning. Turn screw CCW an additional 1/4 turn.
5. Accelerate to full throttle for 2-3 seconds to clear excess fuel from engine then return to idle. Accelerate to full throttle to check for smooth transition from idle to full throttle. If engine hesitates, turn LO (B) needle CCW an additional 1/8 turn and repeat acceleration. Continue adjusting until smooth acceleration results.
6. Check HI (A) speed RPM at W.O.T. (Wide Open Throttle). HI speed RPM should be set to specifications found on "Specifications" page of this manual.
7. Check idle speed and reset if necessary. If a tachometer is available, idle speed should be set to the specification found on "Specifications" page of this manual.

WARNING

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

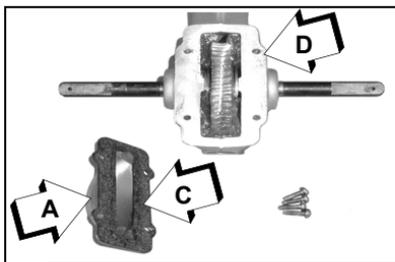
Lubrication

Level 1.

Parts required: Lithium-based grease.

Gear Housing

1. Remove tines (see Tine Removal / Cleaning / Installation below).
2. Remove gear case cover (A). Be careful not to tear sealing gasket (C).
3. Support tiller with exposed gear case (D) upward. Add grease until nearly level with top of gear case (D).



NOTICE

Do not over fill. Too much grease will cause pressure and possible seal failure.

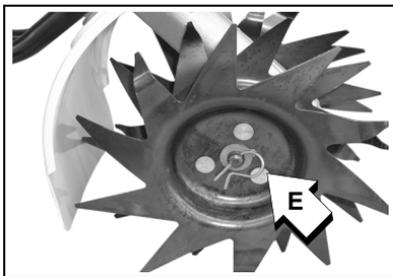
Tine Removal / Cleaning / Installation

Note: Always wear gloves to protect hands from sharp blades.

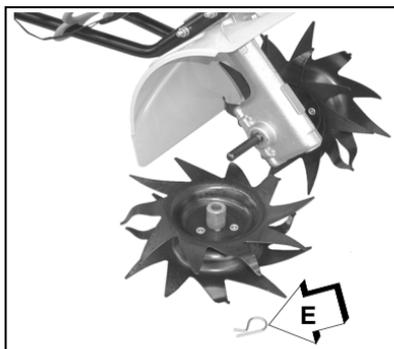
! WARNING

Stop engine and disconnect spark plug wire before removing or installing tines. Contact with revolving tines will cause severe injury.

1. Remove retaining pin (E) and slide tine from shaft.
2. Remove weeds, etc. from tines and wash dirt from unit.
3. Clean accumulated dirt and debris from gear housing and tine shaft.
4. Select "Tilling" or "Cultivating" position, and install tines facing forward (tilling) or rearward (cultivating).



5. Slide tine on shaft, long hub first. D-hole (hole with flat side) goes to the outside. (D-hole in outer hub aligns with flat on shaft.)
6. Install retaining pin (E).



TROUBLESHOOTING

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 strainer or fuel line obstructed	Clean or replace See your dealer
	Fuel at cylinder	No fuel at cylinder	Carburetor	See your dealer
		Muffler wet with fuel	Fuel mixture too rich	OPEN choke Clean or replace air filter Adjust carburetor See your dealer
Engine does not start	Spark at end of plug wire	No spark	STOP switch OFF - Electrical problem - Interlock switch	Turn switch to ON See your dealer
	Spark at plug		Incorrect gap - Covered with carbon - Fouled with fuel - Plug defective	Adjust to 0.65 mm (0.026 in.) Clean or replace plug

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

DANGER

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

STORAGE

WARNING

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

Long Term Storage (Over 30 Days)

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

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

DANGER

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

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

SPECIFICATIONS

MODEL	TC-210
Length	1,180 mm (46.5 in.)
Width	335 mm (13.2 in.)
Height	935 mm (36.8 in.)
Weight (dry) with tines	9.7 kg (21.3 lb.)
Engine Type	Air-cooled, two-stroke, single cylinder gasoline engine
Bore	32.2 mm (1.27 in.)
Stroke	26.0 mm (1.02 in.)
Displacement	21.2 cc (1.29 in.3)
Exhaust	Spark arrester muffler or spark arrester muffler with catalyst
Carburetor	Diaphragm with purge pump
Ignition System	Flywheel magneto, capacitor discharge ignition type
Spark Plug	NGK BPM8Y (BPMR8Y in Canada) Gap 0.65 mm (0.026 in.)
Fuel	Mixed (gasoline and two-stroke oil)
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	0.5 L (16.9 US fl. oz.)
Starter System	Automatic rewind starter
Clutch	Centrifugal type
Gear Case Ratio	Worm gear type (42:1 ratio)
Tines	Special 10-tooth design
	229 mm (9 in.) cultivating swath (4 tines)
	229 mm (9 in.) diameter
Idle Speed	3,000 RPM
Clutch Engagement Speed	3,800 RPM
Wide Open Throttle Speed	11,000 RPM

NOTES



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.***

NOTES



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