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OPERATOR'S MANUAL ENGINE DRILL EDR-210



WARNING

READ INSTRUCTIONS CAREFULLY AND FOLLOW RULES FOR
SAFE OPERATION.



FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.

ECHO, INCORPORATED

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WARNING


Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints,
- Crystalline silica from bricks and cement and other masonry products, and
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.


WARNING


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

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Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice. Illustrations may include optional equipment and accessories, and may not include all standard equipment.

INTRODUCTION

ECHO Engine Drill EDR-210 is a lightweight, high performance, two-stroke engined unit designed for drilling.

This Manual provides the information necessary for operation and maintenance.



WARNING

IMPROPER USE OR CARE OF THIS UNIT, OR FAILURE TO WEAR PROPER PROTECTION CAN RESULT IN SERIOUS INJURY. READ AND UNDERSTAND THE RULES FOR SAFE OPERATION AND ALL INSTRUCTIONS IN THIS MANUAL.

SAFETY AND SPECIAL INFORMATION



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.



CIRCLE AND SLASH SYMBOL

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



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.

NOTE

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



CAUTION

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

IMPORTANT

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

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

DECALS AND SYMBOLS

Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	Carefully read the operator's manual		Wear eyes, ears and head protection
	Beware of high-temperature areas		Finger severing

SAFETY



WARNING

ENGINE DRILL USERS RISK INJURY TO THEMSELVES AND OTHERS IF THE ENGINE DRILL IS USED IMPROPERLY, AND/OR SAFETY PRECAUTIONS ARE NOT FOLLOWED. PROPER CLOTHING AND SAFETY GEAR MUST BE WORN WHEN OPERATING ENGINE DRILL.



WARNING

ALWAYS STOP THE ENGINE WHEN A DRILL JAM OCCURS. DO NOT ATTEMPT TO REMOVE AN OBJECT CAUSING A DRILL JAM IF THE ENGINE IS RUNNING. PHYSICAL INJURY CAN OCCUR IF A DRILL JAM IS REMOVED AND THE DRILLS START MOVING.

OPERATOR SAFETY

- Read this Engine drill Operator's Manual carefully. Be sure you understand how to operate this unit properly before you use it.
- Be familiar with all the controls and the proper use of the machine.
- Wear proper clothing to protect legs and other exposed parts of your body.
- Wear non-skid sole shoes. Do not wear open-toed shoes or operate unit while bare footed.
- Wear eye and hearing protection devices.
- Use caution when handling fuel. Put the caps back tightly on both the fuel can and the engine drill fuel tank. Move at least 3 m (10 feet) from the re-fueling point and be sure there is no leakage of fuel from the fuel tank cap or the fuel system before starting the engine.
- Operate this gasoline powered engine equipment in a well-ventilated area only.
- Start the unit on the ground with the throttle set at idle. Do not start if the drills are obstructed by the ground or any other object.
- Never allow children to use the machine.
- Do not allow anyone to hold the material you are drilling.
- Keep a firm grip on the engine drill with both hands, one hand on the front handle, the other hand on the rear handle.

- Do all drilling at full throttle speed. Drilling at less at than full speed can damage the clutch by allowing it to slip.



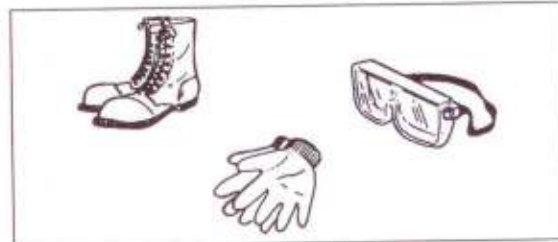
WARNING

USE A FIRM GRIP WITH THUMBS AND FINGERS ENCIRCLING THE HANDLES. A FIRM GRIP WILL HELP YOU KEEP CONTROL OF THE ENGINE DRILL. NEVER OPERATE THE ENGINE DRILL ONLY ONE HAND OR BODILY INJURY CAN OCCUR.

- Always carry the engine drill with the engine stopped and the HOT muffler away from your body.

PROTECTIVE EQUIPMENT

- Always wear eye protection goggles that meet ANSI Z87.1 standards.
- Wear hearing protection. ECHO recommends that hearing protection be worn at all times.
- Dress properly! Do not wear loose clothing or jewellery, they can be caught in moving parts. Use of sturdy gloves, non-skid footwear, and safety glasses is recommended.
- While operating the machine always be sure of a secure position.



- Wear non-slip, heavy-duty work gloves to improve your grip on the engine drill handles. The gloves also help reduce the transmission of machine vibrations to your hands.

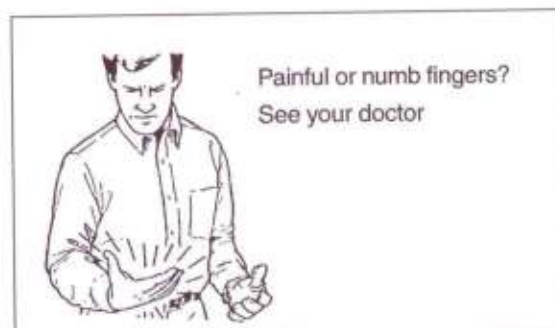
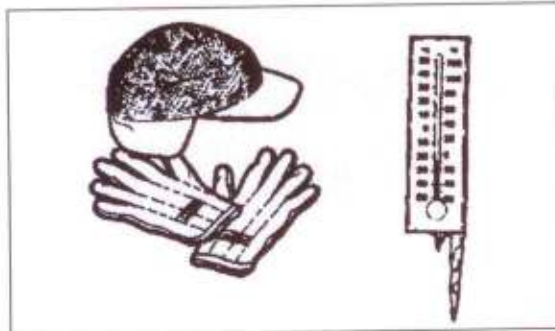
PROTECTING OTHERS

Spectators, children, fellow workers and animals must be warned to come no nearer than 4.6 m (15 feet) while the engine drill is in use.

People working in the area near you should wear the same protective equipment as the operator.

PHYSICAL CONDITION

Your judgement and dexterity may be impaired if you are ill or have taken alcohol or other substances known to affect the way you would normally function.

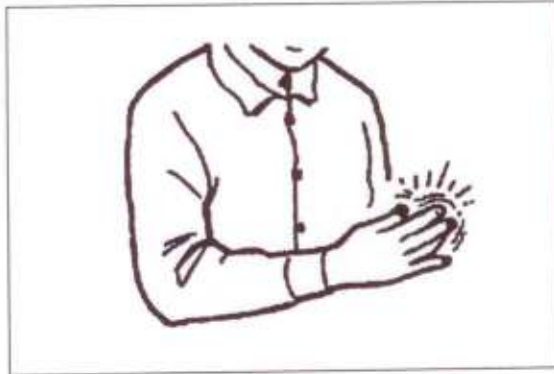
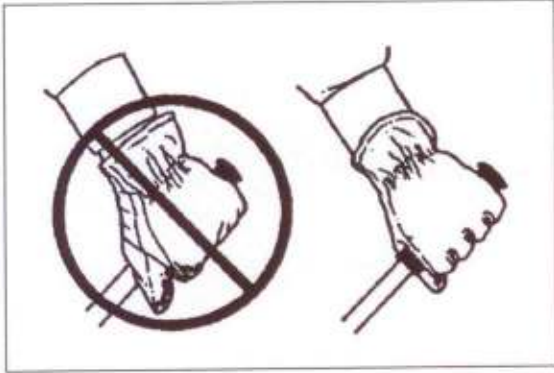


WARNING

PRECAUTION AGAINST VIBRATION AND COLD

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 ENGINE DRILL 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

It is believed that over-using 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 exercise to strengthen the hand and arm muscles.
- See 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.

OPERATING TECHNIQUES

- When starting to drill, run the engine at full throttle.

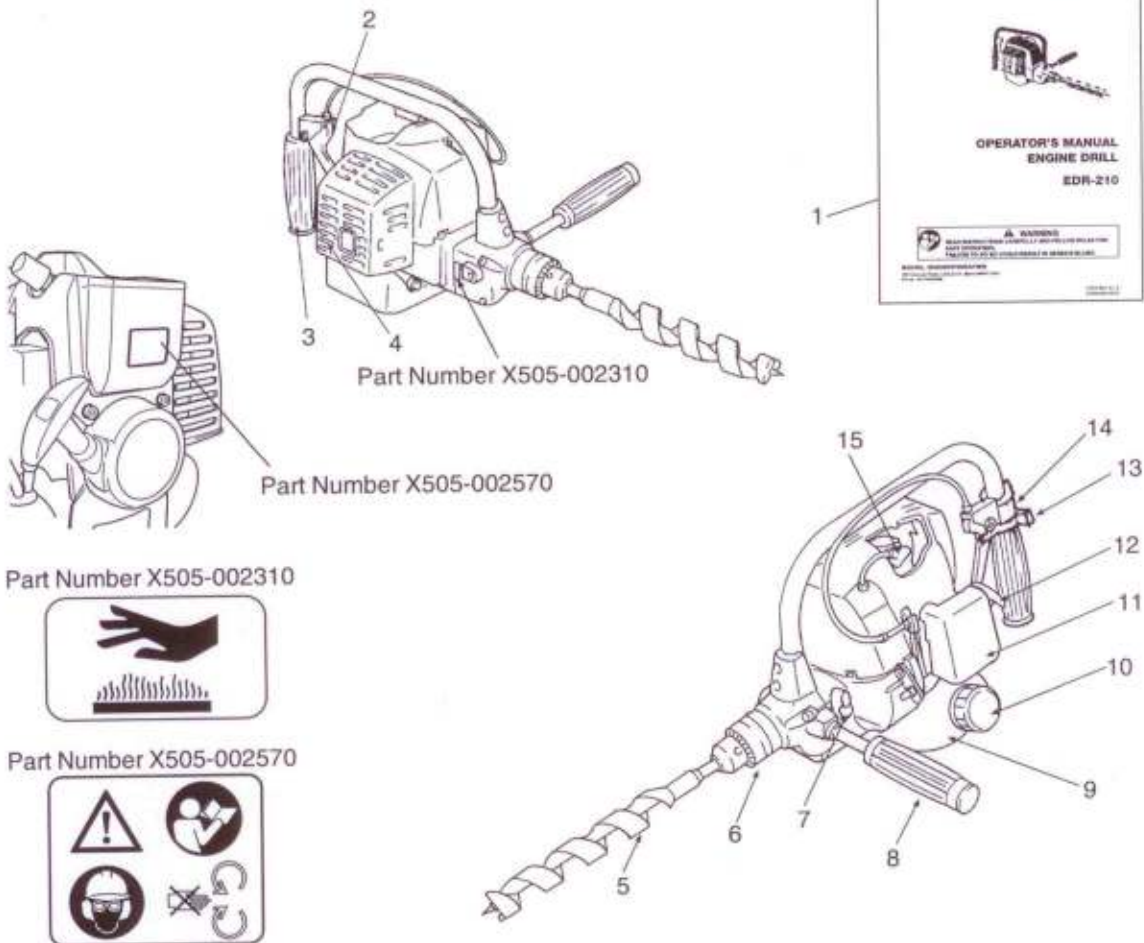


WARNING

BEFORE DRILLING, BE SURE TO READ AND UNDERSTAND THE ENTIRE OPERATOR'S MANUAL TO AVOID THE CHANCE OF SERIOUS INJURY.

- When transporting or storing the machine always remove the drill bit.
- To reduce fire hazard keep engine and silencer free of debris, leaves or excessive grease.
- Handle drill with care, contacting with drills may cause injury.
- Do not force the drills and only move as quickly as the drills will allow.
- Stop the engine and disconnect from ignition cable before: - cleaning or when clearing a blockage; checking, maintenance or working on the machine.
- Handle fuel with care; it is highly flammable. Never add fuel to a machine with a running or hot engine.
- Do not attempt to repair the machine unless you are qualified to do so.
- Do not operate the machine with a damaged or excessively worn drill bit.
- Always ensure all handles and guards are fitted when using the machine. Never attempt to use an incomplete machine or one fitted with an unauthorized modification.

DESCRIPTION

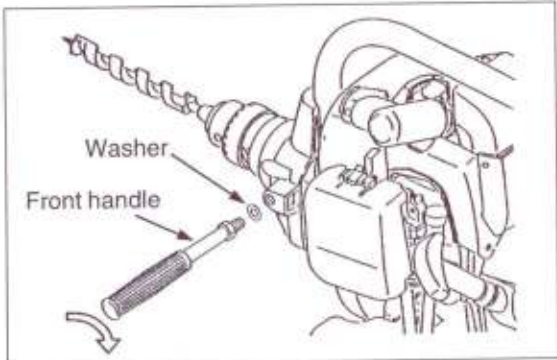


* If a decal cannot be read, a new one can be ordered from your ECHO dealer.

1. **Operator's manual** - Included with unit. Read before operation and keep for future reference to learn proper, safe operating techniques.
2. **Throttle trigger** - Device activated by the operator's finger, for controlling the engine speed.
3. **Rear handle** - Handle located furthest from the drill bit.
4. **Silencer cover**
5. **Drill bit** - Not included with unit.
6. **Chuck**
7. **Shift lever**
8. **Front handle** - Handle located on the front gear case.

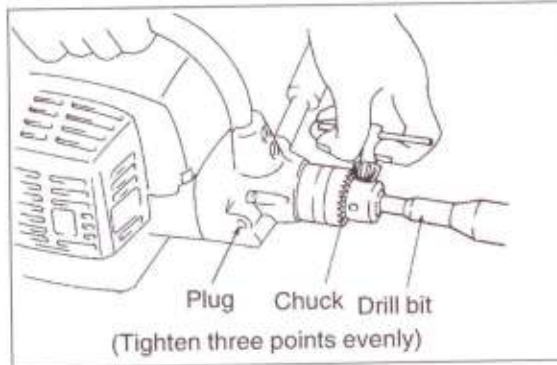
9. **Fuel tank** - Contains fuel and fuel filter.
10. **Fuel tank cap** - For closing the fuel tank.
11. **Air cleaner cover** - Covers air filter.
12. **Starter handle** - Pull handle to start the engine.
13. **Throttle trigger lockout** - Device that prevents the accidental operation of the throttle trigger until manually released.
14. **Ignition switch** - Device for allowing the engine to be started and stopped.
15. **Spark plug**

ASSEMBLING



FRONT HANDLE

- Insert the front handle to the machine, and turn clockwise.
(TIGHTEN THE SCREW FIRMLY)
 - To operate front handle with right hand, remove right plug then reverse sides when installing handle and plug.



DRILL BIT

- Insert the drill bit (not provided with unit) until it reaches the bottom of the chuck, then back it out slightly; tighten the chuck jaws evenly and completely.

IMPORTANT

Use drill bits suited for the material being drilled and for the depth of hole required.

OPERATION



WARNING

ALTERNATIVE FUELS, SUCH AS E-20 (20 % ETHANOL), E-85 (85 % ETHANOL) OR ANY FUELS NOT MEETING ABOVE REQUIREMENTS ARE NOT APPROVED FOR USE IN ECHO 2-STROKE GASOLINE ENGINES.

USE OF 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. ALTERNATIVE FUELS MAY ALSO CAUSE PREMATURE DETERIORATION OF FUEL LINES, GASKETS, CARBURETOR AND OTHER ENGINE COMPONENTS.

Fuel Mix Chart 50 : 1

US.		METRIC	
Gasoline	Oil	Gasoline	Oil
Gallons	US. fl. oz.	L	mL
1	2.6	4	80
2	5.2	8	160
5	12.8	20	400

CHECK UP OF NUTS AND OTHER HARDWARES

- Check up loose nuts, bolts and screws before using the unit every day.

FUEL STATEMENT

GASOLINE - Use 89 Octane [(R+M)/2] (mid grade or higher) gasoline or gasohol known to be good quality.

Gasohol may contain up to 10 % Ethyl (grain) alcohol or 15 % MTBE (methyl tertiary-butyl ether). Gasohol containing methyl (wood) alcohol is **NOT** approved.

TWO-STROKE OIL - A two-stroke engine oil meeting ISO-L-EGD (ISO/CD 13738) and JASO M345-FC/FD Standards must be used. ECHO brand premium Power Blend X™ Universal 2-Stroke Oil meets these standards. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD (ISO/CD 13738) and JASO M345-FC/FD certified oil, such as ECHO premium Power Blend X™, will void the two-stroke engine warranty. (Emission related parts only are covered for two years, regardless of two-stroke oil used, per the statement listed in the Emission Defect Warranty Explanation.)

IMPORTANT

- ECHO premium Power Blend X™ Universal 2-Stroke Oil may be mixed at 50 : 1 ratio for application in all ECHO engines sold in the past regardless of ratio specified in those manuals.
- Use of unmixed, improperly mixed, or fuel older than 90 days, (stale fuel), may cause hard starting, poor performance, or severe engine damage and void the product warranty. Read and follow instructions in the Storage section of this manual.

HANDLING FUEL

MIXING INSTRUCTIONS -

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

IMPORTANT

- 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.
- Stored fuel ages.
Do not mix more fuel than you expect to use in thirty (30) days, ninety (90) days when a fuel stabilizer is added.
- Stored two-stroke fuel may separate.
ALWAYS shake fuel container thoroughly before each use.

AFTER USE -

DO NOT store a unit with fuel in its tank. Leaks can occur. 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.



DANGER

FUEL IS VERY 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!
- NEVER REFUEL A UNIT WITH THE ENGINE RUNNING.
- DO NOT FILL FUEL TANKS INDOORS.
ALWAYS FILL FUEL TANKS OUTDOORS OVER BARE GROUND.
- DO NOT OVERFILL FUEL TANK. IT IS NOT PERMITTED TO FILL FUEL ABOVE THE SHOULDER LEVEL OF FUEL TANK. WIPE UP SPILLS IMMEDIATELY.
- SECURELY TIGHTEN FUEL CAP AFTER REFUELING.
- INSPECT FOR FUEL LEAKAGE.
IF FUEL LEAKAGE IS FOUND, DO NOT START OR OPERATE UNIT UNTIL LEAKAGE IS REPAIRED.
- MOVE AT LEAST 3 M (10 FEET) FROM REFUELING LOCATION BEFORE STARTING THE ENGINE.

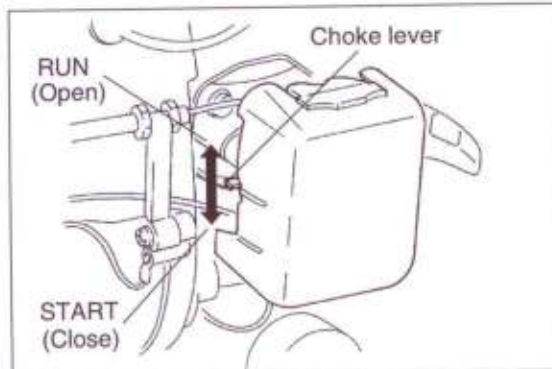
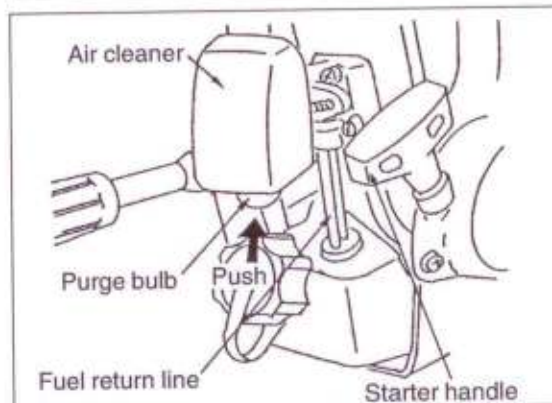
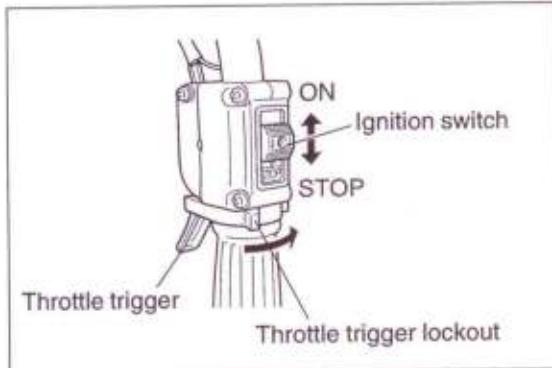


STARTING COLD ENGINE



WARNING

WHEN ENGINE IS STARTED, CONFIRM IF THERE IS NOT ANY ABNORMAL VIBRATION OR SOUND. IF THERE IS ABNORMAL VIBRATION OR SOUND, ASK YOUR DEALER TO REPAIR.



- Stand the engine upright on a level surface.
- Place ignition switch in ON (START/RUN) position.
- Push purge bulb 3 to 4 times (or until fuel is visible in fuel return line).
- Shift choke lever to close position (START).
- Pull starter handle until the engine fires.
- Shift choke lever to full open position, and if necessary, start the engine again and allow to warm up before using.
 - The clutch engages at approximately 3500 r/min. Therefore the drill bit may rotate at fast idle engine speed.

STARTING WARM ENGINE

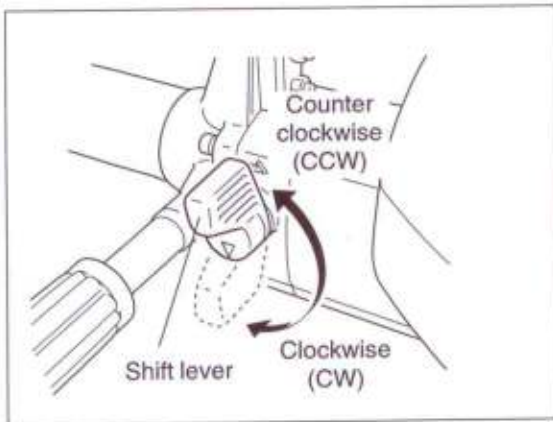
- Place ignition switch in ON (START/RUN) position.
- Pull starter handle until the engine fires.
 - Do not use the choke.

STOPPING ENGINE

- Set throttle trigger in idle position.
- Place ignition switch in STOP position.

NOTE

When engine does not stop, shift choke lever to close position. Check and repair ignition switch before starting the engine again.



REVERSE ROTATION

- This model is equipped with reverse rotation mechanism.
- When drilling, set shift lever down to clockwise (CW) rotation position.
- If bit is locked due to deep penetration during drilling operation, set shift lever up to counterclockwise (CCW) rotation position and operate reversed for easy pulling-out.
- When changing direction of drill rotation, operate as follows:
 - Return engine to idle.
 - Engine shift lever to CW or CCW position with a slight acceleration of the throttle trigger.
 - To properly lock the gears in the gear case.
 - Do not operate shift lever forcibly when changing rotation direction.



WARNING

- WHEN THE DRILL CAN NOT PULL OUT FROM THE WOOD, DO NOT TRY TO PULL OUT THE DRILL BY FORCE.
- WHEN CHANGING THE BIT, ENSURE TO STOP THE ENGINE.
- AFTER A JOB, BIT AND GEAR CASING MAY BE HEATED, DO NOT TOUCH THEM WITH BARE HANDS.

NOTE

Do not shift from forward to reverse (or vice-versa) while the chuck is turning. Failure to do so may cause unit damage. Always release throttle and allow the unit to return to idle before shifting.

Do not stand close to drill or chuck with your body or clothes while operation.

When drilling, ensure that no power cable or other obstacle exist.

MAINTENANCE AND CARE

AREA	MAINTENANCE	PAGE	BEFORE USE	MONTHLY	YEARLY	DATE MAINTENANCE PERFORMED
Air Filter	Clean/Replace	13	•			
Fuel Filter	Inspect/Clean/ Replace	13		•		
Spark Plug	Inspect/Clean/ Adjust/Replace	13		•		
Carburetor	Adjust	14			•	
Cooling System	Inspect/Clean	15	•			
Silencer	Inspect/Tighten/ Clean	15	•			
Starter Rope	Inspect/Replace	-		•		
Drills	Inspect/Clean/ Lubricate	-			•	
Fuel Leaks	Inspect	13	•			
Screws, Bolts and Nuts	Inspect, Tighten/Replace	-	•			
Fuel Line	Inspect	-		•		

IMPORTANT

Time intervals are maximum. Actual use and your experience will determine the frequency of required maintenance.
Record dates of monthly and yearly inspections.

EMISSION DATA

EMISSION CONTROL

(EXHAUST and EVAPORATIVE) EPA 2010 and/ or C.A.R.B. TIER III

The emission control system for the engine is EM/ TWC (Engine Modification and 3-way Catalyst) and for the fuel tank the Control System is EVAP (Evaporative Emissions) or N (for nylon tank). Evaporative emission may be applicable to California models only.

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 300 hours 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.

EMISSION CONTROL INFORMATION

ENGINE FAMILY: 01EHXS.0214EE DISPLACEMENT: 21.2cc
EMISSION COMPLIANCE PERIOD: 300hours
THIS ENGINE MEETS U.S.EPA EXH REGS FOR MODEL YEAR 2010
REFER TO OWNER'S MANUAL FOR MAINTENANCE SPECIFICATIONS AND ADJUSTMENTS.

YAMABIKO CORP.  

TROUBLE SHOOTING

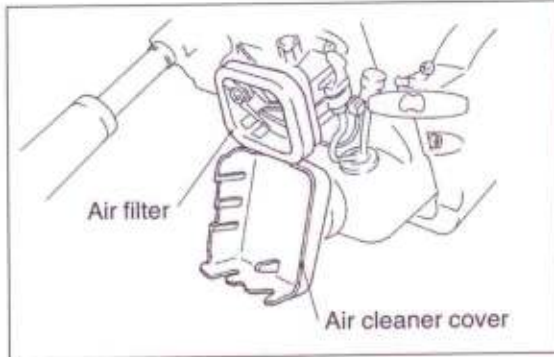
Trouble			Cause	Remedy
Engine - hard to start - does not start				
Engine cranks ↓	Fuel at carburetor →	No fuel at carburetor	• Fuel filter clogged • Fuel line clogged • Carburetor	• Clean or replace • Clean • Ask your ECHO dealer
	Fuel at cylinder →	No fuel at cylinder	• Carburetor	• Ask your ECHO dealer
	↓	Silencer wet with fuel	• Fuel mixture is too rich	• Open choke • Clean/replace air filter • Adjust carburetor • Ask your ECHO dealer
	Spark at end of plug wire →	No spark at end of plug wire	• Ignition switch off • Electrical problem	• Turn switch on • Ask your ECHO dealer
	Spark at plug →	No spark at plug	• Spark gap incorrect • Covered with carbon • Fouled with fuel • Spark plug defective	• Adjust 0.6 to 0.7 mm (0.024 to 0.028 in) • Clean or replace • Clean or replace • Replace plug
Engine does not crank		• Internal engine problem	• Ask your ECHO dealer	
Engine runs ↓	Dies or accelerates poorly ↓	• Air filter dirty • Fuel filter dirty • Fuel vent blocked • Spark plug • Carburetor • Cooling system blocked • Exhaust port/spark arrester screen blocked	• Clean or replace • Clean or replace • Clean • Clean and adjust/replace • Adjust • Clean • Clean	



WARNING

- ALL ENGINE DRILL SERVICE OPERATIONS, OTHER THAN ITEMS LISTED IN THE OPERATOR'S MANUAL, SHOULD BE PERFORMED BY AN AUTHORIZED ECHO DEALER.
- FUEL VAPORS ARE EXTREMELY FLAMMABLE AND MAY CAUSE FIRE AND/OR EXPLOSION. NEVER TEST FOR IGNITION SPARK BY GROUNDING SPARK PLUG NEAR CYLINDER PLUG HOLE, OTHERWISE SERIOUS PERSONAL INJURY MAY RESULT.

MAINTENANCE



AIR FILTER

- Clean before use.
 - Remove air cleaner cover and pull out air filter.
 - Lightly brush off dust or wash it in water and detergent.
 - Dry completely before putting it back in place.

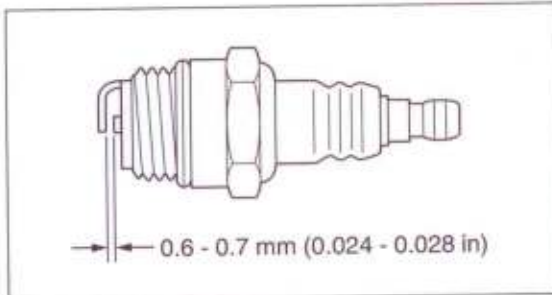


FUEL FILTER

- Check periodically.
 - Do not allow dust to enter into fuel tank.
 - Clogged filter will cause difficulty in starting engine or poor engine performances.
 - Pick up fuel filter through fuel inlet port with a piece of steel wire or the like.
 - When filter is dirty, replace it.

CHECK FUEL SYSTEM

- Check before every use.
- After refueling, make sure fuel does not leak or exude from around fuel pipe, fuel grommet or fuel tank cap.
- In case of fuel leakage or exudation there is a danger of fire. Stop using the machine immediately and request your dealer to inspect or replace.

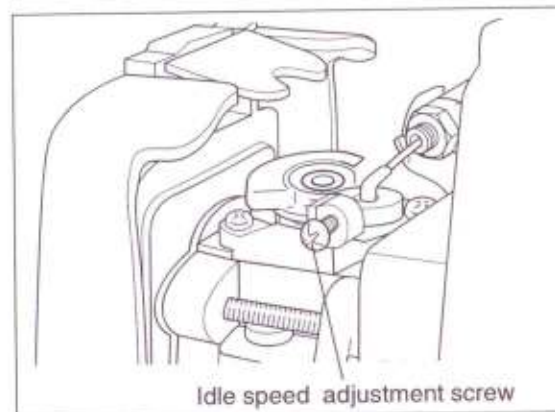
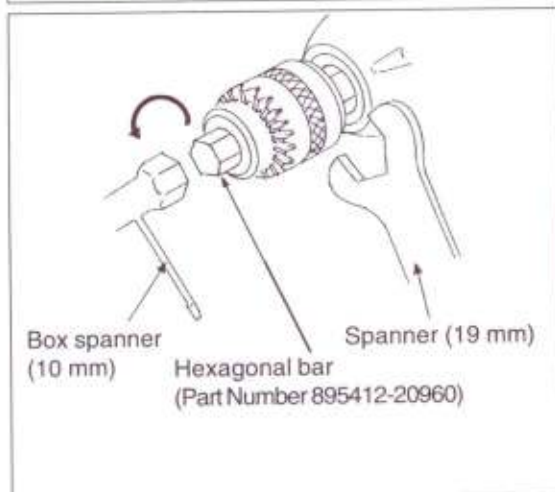
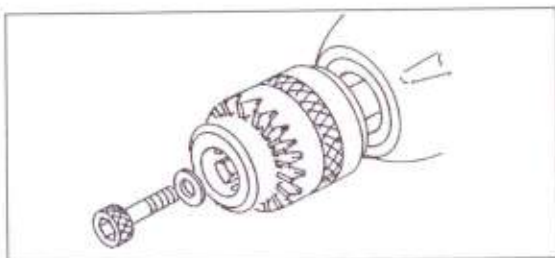


SPARK PLUG

- Check periodically.
 - The standard spark gap is 0.6 to 0.7 mm (0.024 to 0.028 in).
 - Correct spark gap if it is wider or narrower than the standard gap.
 - If the electrodes are coated with carbon deposits replace with a new spark plug. Do not sandblast to clean. Remaining sand will damage engine.
- Fastening torque = 15 to 17 N • m (130 to 145 in • lb).

IMPORTANT

Do not over tighten plug.



High Altitude Operation

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

IMPORTANT

If the engine is adjusted for operation above 1100 feet ASL, the carburetor must be readjusted when operating the engine below 1100 feet ASL, otherwise severe engine damage may result.

REPLACEMENT OF CHUCK

Replacement of chuck should be done in the following manner:

1. Remove bolt with hexagonal hole fixed in the driving axle.
2. Insert accessory hexagonal bar (Part Number 895412-20960) into chuck and fix.
3. Fit 19 mm spanner onto driving axle and keep it fitted.
4. Fit 10 mm box spanner onto the hexagonal bar and turn it into direction as indicated by an arrow to remove chuck.
5. Fit a new chuck in the reversed order of removing.

ADJUSTING CARBURETOR (As Required)

GENERAL INFORMATION

The idle speed adjuster screw controls the throttle opening at the idle position.

IDLE ADJUSTMENT

1. Start engine and allow it to run at high idle until warm.
2. Turn the idle speed screw clockwise until drill bit begins to move.
3. Turn idle screw counterclockwise 1 and 1/2 to 2 turn or until the drill bit stops (2700 to 3300 r/min).

NOTE

When there is some trouble with the carburetor, contact your dealer.

CLEANING CYLINDER FINS
(Check Periodically)

NOTE

Clogged fins will cause poor engine cooling.

- 1. Carefully remove housing and clean dirt and dust from fins.
- 2. Reinstall housing.

CLEANING SILENCER AND EXHAUST PORT
(Check Periodically)

- 1. Carefully remove housing halves.
- 2. Remove and disassemble silencer.

NOTE

Be careful not to scratch the cylinder or piston when cleaning the cylinder exhaust port.

- 3. Clean deposits from cylinder exhaust port and silencer.

STORAGE

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 and other unauthorized persons.
- 2. Place ignition switch in STOP 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, bolts and nuts.

- 6. Drain the fuel tank completely and pull the recoil starter handle several times to remove fuel from the carburetor.
- 7. Remove the spark plug and pour 1/2 tablespoon (1/4 oz) of fresh, clean, 2-stroke engine oil into the cylinder through the spark plug hole.
 - A. Place a clean cloth over the spark plug hole.
 - B. Pull the recoil starter handle 2 or 3 times to distribute the oil inside the engine.
 - C. Observe the piston location through the spark plug hole. Pull the recoil starter handle slowly until the piston reaches the top of its travel and leave it there.
- 8. Install the spark plug (do not connect ignition cable).
- 9. Lubricate the drill bit with a heavy coat of oil to prevent rust.



WARNING
DO NOT STORE IN AN ENCLOSURE WHERE FUEL FUMES MAY ACCUMULATE OR REACH AN OPEN FLAME OR SPARK.

NOTE

For future reference, you should keep this operator's manual.

SPECIFICATIONS

		EDR-210
Mass without drill bit	kg	4.6 (10.1 lb)
Volume fuel tank	L	0.5 (16.9 US fl. oz.)
Drill size	mm	32 - 178 (1.25 - 7 inch)
chuck capacity	mm	13 (0.5 inch)
speed	r/min	520
Mission reduction ratio		17.1 (regular side) 18.6 (reverse side)
lubrication		grease
External Dimensions length x width x height without drill bit	mm	430 x 320 x 265 (16.9 x 12.6 x 10.4 inch)
Engine type		Air cooled Two stroke single cylinder
engine displacement	mL(cm³)	21.2 (1.29 cu. inch)
recommended maximum engine speed	r/min	9000
recommended engine idling speed	r/min	2900
engine speed at beginning of clutch engagement	r/min	4000
carburetor		diaphragm type
ignition		flywheel magneto - CDI system
spark plug		NGK BPM8Y
starter		recoil starter
clutch		automatic centrifugal
Fuel mixture ratio		50:1 ratio with ECHO Power Blend X™ , ISO-L-EGD (ISO/CD 13738) and JASO M345-FC/FD two-stroke, air-cooled engine oil.
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-20 or E-85.
fuel consumption at engine maximum power	L/h	0.47 (15.9 US fl. oz.)

WARRANTY STATEMENTS

ECHO LIMITED WARRANTY STATEMENT FOR PRODUCT SOLD IN USA AND CANADA BEGINNING 01/01/2010

ECHO'S RESPONSIBILITY

ECHO Incorporated's Limited Warranty, provides to the original purchaser that this ECHO product is free from defects in material and workmanship. Under normal use and maintenance from date of purchase, ECHO agrees to repair or replace at ECHO's discretion, any defective product free of charge at any authorized ECHO servicing dealer within listed below application time periods, limitations and exclusions. **THIS LIMITED WARRANTY IS ONLY APPLICABLE TO ECHO PRODUCTS SOLD BY AUTHORIZED ECHO DEALERS. IT IS EXTENDED TO THE ORIGINAL PURCHASER ONLY, AND IS NOT TRANSFERABLE TO SUBSEQUENT OWNERS EXCEPT FOR EMISSION RELATED PARTS.** Repair parts and accessories replaced under this warranty are warranted only for the balance of the original unit or accessory warranty period. Any damage caused by improper installation or improper maintenance is not covered by this warranty. All parts or products replaced under warranty become the property of ECHO, Inc. This warranty is separate from the Emission control warranty statement supplied with your new product. Please consult the Emission Control Warranty Statement for details regarding emission related parts. For a list of Authorized ECHO Dealers refer to WWW.ECHO-USA.COM or call 1-800-432-ECHO.

OWNER'S RESPONSIBILITY

To ensure trouble free warranty coverage it is important that you register your ECHO equipment on-line at WWW.ECHO-USA.COM or by filling out the warranty registration card supplied with your unit. Registering your product confirms your warranty coverage and provides a direct link if we find it necessary to contact you.

The owner shall demonstrate reasonable care and use, and follow preventative maintenance, storage, fuel and oil usage as prescribed in the operator's manual. Should a product difficulty occur, you must, at your expense, deliver or ship your ECHO unit to an authorized ECHO servicing dealer for warranty repairs (within the applicable warranty period), and arrange for pick-up or return of your unit after the repairs have been made. For your nearest authorized ECHO servicing dealer, call ECHO's Dealer Referral Center, at 1-800-432-ECHO or you can locate an ECHO servicing dealer at WWW.ECHO-USA.COM. Should you require assistance or have questions concerning ECHO's Warranty Statement, you can contact our Consumer Product Support Department at 1-800-673-1558 or contact us through the web at WWW.ECHO-USA.COM.

PRODUCT WARRANTY PERIOD

RESIDENTIAL APPLICATION

- **5 YEAR WARRANTY** - All units for residential, or non-income producing use will be covered by this limited warranty for **five (5) years** from date of purchase.

EXCEPTIONS:

- For two-stroke engine powered products, the electronic ignition module, flexible drive cables, SRM solid drive shafts, and TC lines are warranted for the **life*** of the product on parts only.
- Cutting attachments such as, but not limited to, bars, chains, sprockets, blades, and nylon trimmer heads for residential or non-income producing use will be covered for failures due to defects in material or workmanship for a period of **60 days** from original product purchase date. Any misuse from contact with concrete, rocks, or other structures is not covered by this warranty.
- ECHO's Rapid Loader String Head carries a lifetime warranty on the line locking system, parts only; no labor. Refer to your operator's manual for string head installation and maintenance instructions.
- All SB-Series and PRO ATTACHMENT SERIES Split Shaft attachments carry the same warranty duration as the units they are designed to fit.

COMMERCIAL APPLICATION

- **1 YEAR WARRANTY** - All Chain Saws, QuikVent Saws, and Cut-Off Saws for commercial, institutional, agricultural, industrial, or income producing use will be covered by this limited warranty for one **(1) year** from the date of purchase.
- **2 YEAR WARRANTY** - All other units for commercial, institutional, agricultural, industrial, or income producing use will be covered by this limited warranty for two **(2) years** from the date of purchase.

EXCEPTIONS:

- For two-stroke engine powered products, the electronic ignition module, flexible drive cables, SRM solid drive shafts and TC lines, are warranted for the **life*** of the product on parts only.
- Cutting attachments such as, but not limited to, bars, chains, sprockets, blades, and nylon trimmer heads for commercial, institutional, agricultural, industrial, rental, or income producing will be covered for failures due to defects in material or workmanship for a period of **30 days** from original product purchase date. Any misuse from contact with concrete, rocks, or other structures is not covered by this warranty.
- ECHO's Rapid Loader String Head carries a lifetime warranty on the line locking system, parts only; no labor. Refer to your operator's manual for string head installation and maintenance instructions.
- All SB-Series and PRO ATTACHMENT SERIES Split Shaft attachments carry the same warranty duration as the units they are designed to fit.

RENTAL APPLICATION - 90 DAYS WARRANTY

- Units for rental use will be covered against defects in material and workmanship for a period of 90 days from the date of purchase.
- ECHO's liability under the "Lifetime" coverage is limited to furnishing parts specified under the PRODUCT WARRANTY PERIOD section of this warranty statement for "Life" free of charge for a period of ten (10) years after the date of the complete unit's final production.

PURCHASED REPAIR PARTS, SHORT BLOCKS AND ACCESSORIES

- 90-day residential, or non-income producing warranty
- 30-day commercial, institutional, agricultural, industrial, income producing, or rental application warranty

ATTENTION TWO-STROKE ENGINE POWER PRODUCT OWNERS

This ECHO two-stroke engine power product is a quality-engineered unit which has been manufactured to exact tolerances to provide superior performance. To help ensure the performance of the unit, it is required to use two-stroke oil which meets the ISO-L-EGD Standard per ISO/CD 13738 and JASO M345/FC/FD Standards. **ECHO Power Blend™ Two-Stroke Oil** is a premium two-stroke oil specifically formulated to meet ISO-L-EGD (ISO/CD 13738) and JASO M345/FC/FD Standards. The use of two-stroke oils designed for other applications, such as for outboard motors or lawnmowers can result in severe engine damage, and will void your two-stroke engine limited warranty.

THIS WARRANTY DOES NOT COVER DAMAGE CAUSED BY:

- Lack of lubrication or engine failure, due to the use of two-stroke oils that do not meet the ISO-L-EGD (ISO/CD 13738) and JASO M345/FC/FD Standards. Engine problems due to inadequate lubrication caused by failure to use an ISO-L-EGD compliant and JASO M345/FC/FD registered oil, will void the two-stroke engine limited warranty. **ECHO Power Blend™ Two-Stroke Oil** meets the ISO-L-EGD and JASO M345/FC/FD Standard. Emission related parts are covered for 5 years residential use or 2 years commercial use regardless of two-stroke oil used, per the statement listed in the EPA or California Emission Defect Warranty Explanation.
- Damage caused by use of gasohol, containing methanol (wood alcohol), or gasoline containing less than 89 octane. Only use gasoline which contains 89 octane or higher. Gasohol which contains a maximum 10% ethanol (grain alcohol) or 15% MTBE (methyl/tertiary/butyl/ether) is also approved. The prescribed mixing ratio of gasoline to oil is listed on the ECHO oil label and covered in your operator's manual.
- Engine damage caused by use of ether or any starting fluids.
- Damage caused by tampering with engine speed governor or emission components, or running engines above specified and recommended engine speeds as listed in your operator's manual.
- Operation of the unit with improperly maintained/removed cutting shield or removed/damaged air filter.
- Damage caused by dirt, pressure or steam cleaning the unit, salt water, corrosion, rust, varnish, abrasives, and moisture.
- Defects, malfunctions or failures resulting from abuse, misuse, neglect, modifications, alterations, normal wear, improper servicing, or use of unauthorized attachments.
- Incorrect storage procedures, stale fuel, including failure to provide or perform required maintenance services as prescribed in the operator's manual. Preventative maintenance as outlined in the operators manual is the customer's responsibility.
- Failures due to improper set-up, pre-delivery service or repair service by anyone other than authorized ECHO servicing dealer during the warranty period.
- Certain parts and other items are not warranted, including but not limited to: lubricants, starter cords, and engine tune-ups.
- Use of spark plugs other than those meeting performance and durability requirements of the OEM spark plug listed in the Operator's Manuals.
- Overheating or carbon scoring failures due to restricted, clogged exhaust port or combustion chamber, including damage to spark arrester screen.
- Adjustments after the first (30) thirty days and beyond, such as carburetor adjustment and throttle cable adjustment.
- Damage to gears or gear cases caused by contaminated grease or oil, use of incorrect type or viscosity of lubricants, and/or failure to comply with recommended grease or oil change intervals.
- Damage caused by loading SHRED 'N' VAC® beyond recommended capacity.
- Damage caused by pump or sprayer running dry, pumping or spraying caustic or flammable materials, or lack of or broken strainers.
- Additional damage to parts or components due to continued use after operational problem or failure occurs. Should operational problem or failure occur, the product should not be used, but delivered as is to an authorized ECHO servicing dealer.

It is a dealer's and/or customer's responsibility to complete and return the warranty registration card supplied with your ECHO product or by visiting WWW.ECHO-USA.COM. Your receipt of purchase including date, model and serial number must be maintained and presented to an authorized ECHO servicing dealer for warranty service. Proof of purchase rests solely with the customer. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so you may also have other specific legal rights which vary from state to state. This limited warranty is given by ECHO Incorporated, 400 Oakwood Rd., Lake Zurich, IL 60047.

DISCLAIMER OF IMPLIED WARRANTIES

This limited warranty is in lieu of all other expressed or implied warranties, including any warranty of FITNESS FOR A PARTICULAR PURPOSE OR USE and any implied warranty of **MERCHANTABILITY** otherwise applicable to this product. ECHO and its affiliated companies shall not be liable for any special incidental or consequential damage, including lost profits. There are no warranties extended other than as provided herein. This limited warranty may be modified only by ECHO.

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**ECHO INCORPORATED EMISSION CONTROL WARRANTY STATEMENT
FOR ECHO AND SHINDAIWA BRANDS**

The Environmental Protection Agency (EPA) and the California Air Resources Board (C.A.R.B.) and ECHO Incorporated (ECHO Inc.) are pleased to explain the emission control system warranty on your 2010 and later equipment/small off-road engine (SORE). New equipment/SORE must be designed, built and equipped to meet stringent EPA and C.A.R.B. anti-smog standards. ECHO Inc. must warrant the emission control system on your equipment/SORE for the periods of time listed below, provided there has been no abuse, neglect or improper maintenance of your equipment/SORE. Your emission control system may include parts such as: carburetor, fuel-injection system, ignition system, catalytic converter/muffler, fuel tank, fuel feed lines, fuel cap assembly, spark plug, air filters, and other associated components. Where a warrantable condition exists, ECHO Inc. will repair your equipment/SORE at no cost to you including diagnosis, parts and labor. The Emission Control System warranty is extended to the original owner including all subsequent owners.

MANUFACTURER'S WARRANTY COVERAGE:

The emission control system is warranted for 2 years or the length of the ECHO Inc. warranty, whichever is longer. If any emission-related part on your equipment is defective, the part will be repaired or replaced by ECHO Inc. or its Authorized Service Representative.

OWNER'S WARRANTY RESPONSIBILITIES:

As the equipment/SORE owner, you are responsible for the performance of the required maintenance listed in your Operator's Manual. ECHO Inc. recommends that you retain all receipts covering maintenance on your equipment/SORE however, ECHO Inc. cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance. As the equipment/SORE owner, you should be aware that ECHO Inc. may deny you warranty coverage if your equipment/SORE or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

You are responsible for presenting your equipment/SORE to an ECHO Inc. authorized service representative as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If a warrantable condition exists and there is no Authorized Dealer within 100 miles, ECHO Inc. will pay to ship the unit to the nearest authorized dealer. If you have questions regarding your warranty coverage, you should contact ECHO Inc. at 1-800-673-1558, web site WWW.ECHO-USA.COM or contact Shindaiwa at 1-877-986-7783, web site WWW.SHINDAIWA.COM.

WHAT DOES THIS WARRANTY COVER?

ECHO Inc. warrants that your equipment/SORE was designed, built and equipped to conform with applicable EPA and C.A.R.B. emissions standards and that your equipment/SORE is free from defects in material and workmanship that would cause it to fail to conform with applicable requirements for 2 years or the length of the ECHO Inc. warranty, whichever is longer. The warranty period begins on the date the product is purchased by an end user.

HOW WILL A COVERED PART BE CORRECTED?

If there is a defect in a part covered by this warranty, any ECHO Inc. Authorized Service Dealer will correct the defect. You will not have to pay anything to have the part adjusted, repaired or replaced. This includes any labor and diagnosis for warranted repairs performed by the dealer. In addition, engine parts not expressly covered under this warranty but whose failure is a result of a failure of a covered part will be warranted.

WHAT PARTS ARE COVERED?

Any applicable emission related part not scheduled for "required maintenance" will be repaired or replaced within the warranty period. The repaired or replaced part will be warranted for the remaining ECHO Inc. warranty period.

Any warranted part that is scheduled only for regular inspection in the written instructions supplied is warranted for the warranty period stated above. Any such part repaired or replaced under warranty will be warranted for the remaining ECHO Inc. warranty period.

Any emission related part scheduled for replacement during "required maintenance" is warranted for the period of time prior to the first scheduled replacement point for that part. Any such part repaired or replaced under warranty shall be warranted for the remainder of the period prior to the first scheduled replacement point for that part.

Any manufacturer-approved replacement part may be used in the performance of any warranty maintenance or repairs on emission related parts, and must be provided without charge if the part is still under warranty.

Any replacement part that is equivalent in performance and durability may be used in non-warranty maintenance or repairs, and shall not reduce the warranty obligations of the manufacturer.

Throughout the equipment/SORE warranty period, ECHO Inc. will maintain a supply of warranted parts sufficient to meet the expected demand for such parts.

SPECIFIC EMISSION RELATED WARRANTED PARTS:

- | | |
|--|---|
| • Electronic Ignition System | • Spark Plug |
| • Catalytic Converter / Muffler Assembly | • Carburetor (complete assembly or replaceable components) |
| • Choke | • Fuel-Injection Assembly (or replaceable components) |
| • Fuel Tank | • Fuel Cap Assembly |
| • Air Filter | • Fuel Feed Line (and associated clamps/connectors as applicable) |

WHAT IS NOT COVERED?

Any failure caused by abuse, neglect, improper maintenance, unapproved modifications, use of unapproved add-on parts/modified parts or unapproved accessories.

This Emission Control Warranty is valid only for the U.S.A., its Territories, and Canada.

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