



Water Pump

Operator's Manual

MODEL

WP-1000

WP-1000 T1E

WARNING **DANGER**



The muffler or catalytic muffler and surrounding cover may become extremely hot.
Always keep clear of exhaust and muffler area, otherwise serious personal injury may occur.



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 rules for safe operation and instructions carefully. ECHO provides an Operator's Manual, which must be read and understood for proper and safe operation. Failure to do so could result in serious injury.

INTRODUCTION

Welcome to the ECHO family. This ECHO product was designed and manufactured to provide long life and on-the-job-dependability. Read and understand this manual that you found in the package. You will find it easy to use and full of helpful operations tips and SAFETY messages.

THE OPERATOR'S MANUAL --

contains specifications and information for operation, starting, stopping, maintenance, storage and assembly specific to this product.

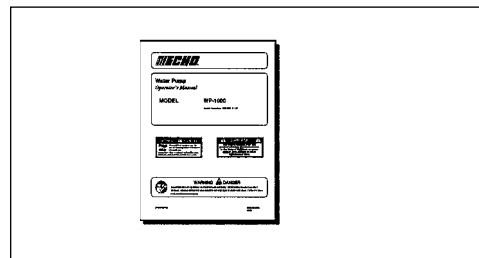


TABLE OF CONTENTS

Introduction.....	2	Maintenance.....	16
- The Operator's Manual	2	- Skill Levels	16
Safety	3	- Maintenance Intervals.....	16
- Manual Safety Symbols & Important Information	3	- Air Filter	17
- Typical Pump Applications.....	4	- Fuel Filter.....	17
- International Symbols.....	4	- Spark Plug.....	18
- Personal Condition & Safety Equipment.....	5	- Cooling System Cleaning	18
- Equipment.....	6	- Exhaust System.....	19
Emission Control	6	- Carburetor Adjustment.....	21
Description	7	- High Altitude Operation	21
Contents	9	- Pump Casing.....	23
Assembly.....	9	Troubleshooting	24
Suction hose.....	9	- Troubleshooting Pump End	25
Discharge hose	10	Storage	25
Operation.....	11	Specifications	27
- Fuel	11	Warranty Statements	28
- Priming Pump	13	Servicing Information	32
- Starting Cold Engine.....	14	- Parts/Serial Number.....	32
- Starting Warm Engine.....	15	- Service	32
- Stopping Engine.....	15	- Echo Consumer Product Support.....	32
- Cold Weather Operation	15	- Warranty Card.....	32
		- Manual Ordering Instructions.....	32

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.

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 may lead to minor or moderate personal injury 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.

NOTE

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

IMPORTANT

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

Improper use or maintenance can result in injury. Carefully read this manual. Learn how to operate your pump correctly. Know and understand the location and operation of the controls. Also pay close attention to safety messages in this manual.

IMPORTANT

Unauthorized modifications to the pump may impair the function and/or safety and affect machine life. Use only approved accessories on the pump.



DANGER

Do not let anyone operate the pump without proper instruction, otherwise serious personal injury may result.
Do not pump flammable substances with this pump.
Do not pump corrosive chemicals with this pump. Exposure to chemicals can be hazardous.

- Keep people and pets out of the area where you are using the pump.
- Do not let children operate the pump, or handle hoses.
- Operation of a pump should be restricted to mature, properly instructed individuals.
Do not operate while under the influence of alcohol or medication.
- Do not run engine in an enclosed or poorly ventilated area (inside a room, garage, barn, etc.). Exhaust gas contains carbon monoxide, an odorless and deadly poisonous gas.
- Do not attempt to carry pump when engine is running.
- Do not operate pump on an incline. It should be placed on a firm, dry, level surface for proper engine operation and lubrication. Keep the area free of any flammable material such as leaves, brush or fuels.
- Do not aim engine exhaust at materials that could catch fire.

- Face cooling air intake (recoil start area) and muffler side of engine 3.3 ft. (1m) away from buildings, obstructions and other combustible objects.
- Do not enclose unit, as it relies on free air circulation to cool the engine. Enclosing the unit can create a fire hazard resulting from entrapped gas fumes and overheating which can result in damage to the engine and other components.
- Avoid accidental fires and engine overheating.
- Do not operate equipment when mentally or physically stressed.
- Do not, under any circumstances, use the pump for purposes that exceed its rated capacity.
- Do not leave pump unattended. If not securely fastened, pump may shift during operation.

TYPICAL PUMP APPLICATIONS

Draining

Cellars

Basements

Flooded Areas

Sumps

Swimming Pools

Irrigation

Lawns

Shrubs and Bushes

Gardens

Transferring

Water

INTERNATIONAL SYMBOLS

Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	"WARNING, SEE OPERATOR' MANUAL"		Fuel and oil mixture
	Wear eyes, ears and head protection		Finger Severing
	Emergency stop		Carburetor adjustment - Low speed mixture

Symbol form/shape	Symbol description/application	Symbol form/shape	Symbol description/application
	Hot Surface		Carburetor adjustment - High speed mixture
	Wear slip resistant foot wear.		Carburetor adjustment - Idle speed
	Choke Control "Cold Start" Position (Choke Closed)		Choke Control "Run" Position (Choke Open)

PERSONAL CONDITION AND SAFETY EQUIPMENT



WARNING

Water Pump users risk injury to themselves and others if the water pump is used improperly and or safety precautions are not followed. Proper clothing and safety gear must be worn when operating a water pump. Failure to do so can result in serious injury.

Physical Condition --

Your judgment and physical dexterity may not be good:

- if you are 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 --

Wear Eye protection goggles that meet ANSI Z87.1 requirements whenever you operate the water pump.

Hearing Protection --

ECHO recommends wearing hearing protection whenever the unit is used.

Proper Clothing --

Wear snug fitting, durable clothing;

- Pants should have long legs, shirts with long sleeves.
- Wear hair covering to contain long hair.
- DO NOT WEAR SHORTS,
- DO NOT WEAR TIES, SCARFS, JEWELRY.

Wear sturdy work shoes with non-skid soles;

- DO NOT WEAR OPEN TOED SHOES,
- DO NOT OPERATE UNIT BAREFOOTED.

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



WARNING

Water can be a conductor of electric current when exposed to live electrical wiring. Electrocutation will result.

- Do not operate pump in flooded basements without first shutting off electricity from outside the house. Pump should be located outside in a vented area.
- Do not operate pump in flooded areas near power lines unless electric service has been disconnected.

Read the Manuals

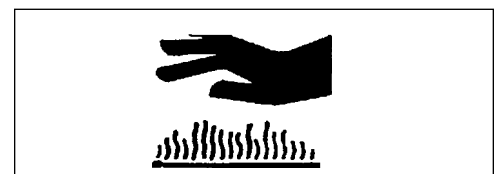
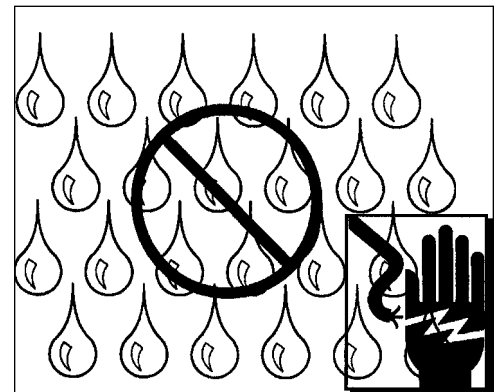
- Provide all users of this equipment with the Operator's Manual and Safety Manual for instructions on Safe Operation.

Clear the Work Area

- Spectators and fellow workers must be warned, and children and animals prevented from coming nearer than 15 m (50 ft.) while the unit is in use.

Avoid Hot Surfaces

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



EQUIPMENT

Before operation a complete check of the unit must be performed;

- Check unit for loose/missing nuts, bolts and screws. Tighten and/or replace as needed.
- Inspect guards and shield for damage and ensure that they are securely in place. Replace if they are damaged or missing.
- Do not operate the pump without an air filter. Rapid engine wear will result.
- Ventilating openings such as crankcase ducts, engine cover, air filter and muffler exhaust outlet must be cleaned periodically and kept free of debris to ensure proper operation and adequate cooling of the engine and pump.



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

Check fuel system for leaks due to fuel tank damage, 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 2010 and Later

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.

EMISSION CONTROL INFORMATION
 ENGINE FAMILY: ☒ EHXS.0454KA DISPLACEMENT: 45.0cc
 EMISSION COMPLIANCE PERIOD = 300 HOURS
 THIS ENGINE MEETS U.S. EPA EXH REGS FOR MODEL YEAR ☒ ☒ ☒
 REFER TO OWNER'S MANUAL FOR MAINTENANCE
 SPECIFICATIONS AND ADJUSTMENTS.
YAMABIKO CORP. ☒ ☒ ☒ ☒

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 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 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.

Extra parts for discharge hose

1. **SPARK ARRESTOR MUFFLER OR SPARK ARRESTOR MUFFLER WITH CATALYST** - The muffler or catalytic muffler controls exhaust noise and emission. The spark arrestor screen prevents hot, glowing particles of carbon from leaving the muffler. Keep exhaust area clear of flammable debris.
2. **CARRYING HANDLE** - The carrying handle is used to transport the pump.
3. **SPARK PLUG** - Provides spark to ignite fuel mixture.
4. **CHOKE LEVER** - Choke lever is located at the top of the air cleaner.
 - Move choke forward to CLOSE (Starting Position) 
 - Move to OPEN (Run Position) 
5. **AIR CLEANER** - Contains replaceable felt element. Should be inspected and cleaned as necessary or daily.
6. **STARTER HANDLE** - Pull handle slowly until starter engages then pull quickly and firmly. When engine starts, return handle slowly. DO NOT let handle snap back or damage to unit can occur.
7. **PRIMER BULB** - Pumping primer bulb before starting engine draws fresh fuel from the fuel tank priming the carburetor for starting. Pump primer bulb until fuel is visible and flows freely in the clear fuel tank return line. Pump bulb an additional 4 or 5 times.
8. **FUEL CAP** - Covers and seals fuel tank. Securely tighten fuel cap after refueling.
9. **IGNITION SWITCH** - "Toggle Switch" mounted on engine. Move Toggle UP to Run. Move Toggle DOWN to Stop.
10. **PUMP STAND** - Pump stand supports pump. Always place pump on a firm, level site as near to the water source as possible. Make sure pump will not move due to vibration and/or the weight of suction hose when full of water.
11. **PUMP HOUSING** - Seals the water from air and has suction and discharge ports. The housing holds water after the pump is stopped, eliminating the need for priming at the next start up.
12. **DRAIN PLUG** - Drains water from pump housing for storage.
13. **SUCTION PORT** - Suction hose attaches to port.
14. **DISCHARGE PORT** - Discharge hose attaches to port. Accepts 25 mm (1 inch) hose coupling or 25 x 19 mm (1 x 3/4 inch) Garden Hose adaptor (included with pump).
15. **PRIME PORT PLUG** - Used to prime or fill the pump housing with water prior to initial start up. Pump is self priming in subsequent operations. Never operate pump without water, otherwise pump seals will fail.
16. **THROTTLE LEVER** - Controls engine speed. Move lever towards engine for idle position. Move lever toward pump housing for fast run position.
17. **SEALING WASHER** - Seals hose connector against pump port. Unit comes with two washers - one for suction hose connector, one extra.*
18. **HOSE FITTING** - Unit comes with two fittings - one for suction hose - one extra.* When assembling, install clamp onto hose, connector onto hose, then press fitting into hose.
19. **HOSE CONNECTER** - Connector threads directly onto 1 inch pump ports. Unit comes with two connectors - one for suction hose - one extra.*
20. **HOSE CLAMP** - Unit comes with three - one for clamping suction hose connector fitting - one for strainer - one extra.*
21. **SUCTION HOSE** - 25 mm (1 inch) inner diameter, 3 m (10 ft.) length. Longer hose up to 7.5 m (24 ft.) can be attached.
22. **STRAINER** - Strainer prevents foreign material larger than 5/16 inch diameter from entering and damaging the pump. Always have strainer attached onto suction hose when operating the pump.
23. **GARDEN HOSE ADAPTER** - Adaptor steps down from 25 mm thread to 3/4 inch and allows household garden hose to be utilized as discharge hose.

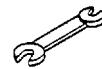
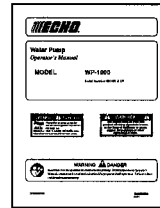
* Extra hose fittings are for use with 25 mm (1 inch) discharge hose which is not supplied.

CONTENTS

Due to packaging restrictions, the ECHO product you have purchased requires some assembly.

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 - Pump Assembly
- ___ 1 - Suction Hose (#21)
- ___ 1 - Operator's Manual
- ___ 1 - Warranty Registration Card
- ___ 1 - Plastic Bag
 - ___ 1, Garden Hose Adaptor (#23)
 - ___ 3, Hose Clamps (#20)
 - ___ 2, Hose Fittings (#18)
 - ___ 2, Hose Connector (#19)
 - ___ 2, Sealing Washers (#17)
 - ___ 1, Strainer (#22)
- ___ 1 - Plastic Bag
 - ___ 1, 8-10 mm Wrench



ASSEMBLY

SUCTION HOSE

Tools Required: 8x10 mm Wrench

1. Remove vinyl cap from suction port (G).
2. Assemble suction hose (A) with clamp (B), hose connector (C), hose fitting (D), and sealing washer (E) on one end and strainer (F) with second clamp on the other end.
3. Attach hose to suction port (G).

NOTE

Longer 25 mm (1 inch) suction hose can be used up to a maximum length of 7.5 m (24 feet).

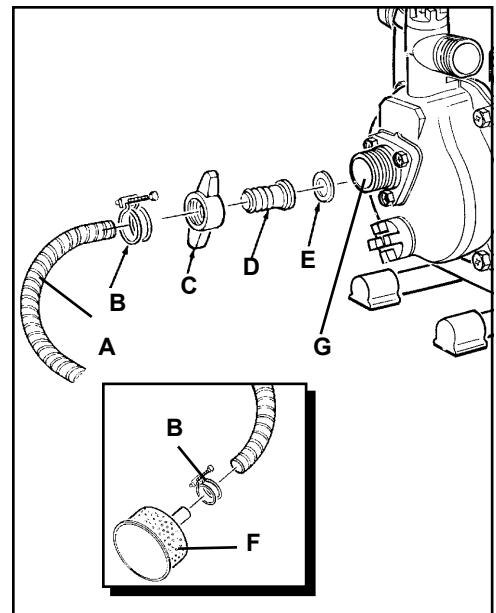
IMPORTANT

- Make sure that all hose and pipe connections are air tight. An air leak in the suction line or suction fittings may prevent priming and will reduce the pumps capacity or efficiency.
- Keep priming port plug and pump drain plug tightly secured in place to prevent entry of air into the pump.
- Use an acceptable pipe thread sealant on all threaded nipple connections.

IMPORTANT

Always use the strainer with the suction hose. Gravel or debris sucked into the pump will cause serious impeller and housing damage.

If the strainer clogs with debris, prevent the strainer from touching the bottom. Placing the strainer in a submerged bucket or basket may also work.



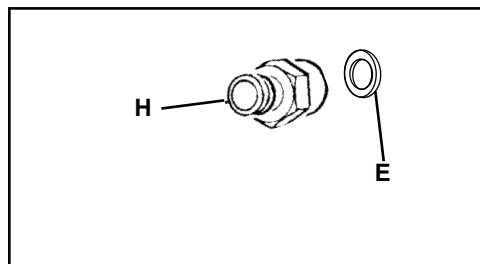
DISCHARGE HOSE

Garden Hose

NOTE

Garden hose ranging from 13 mm (1/2 inch) to 19 mm (3/4 inch) in diameter can be used on the discharge end of this pump.

1. Remove vinyl cap from pump discharge port.
2. Attach the 25 mm to 3/4 inch adaptor (H) and washer (E) tightly onto pump discharge port.
3. Attach garden hose onto adaptor (H).

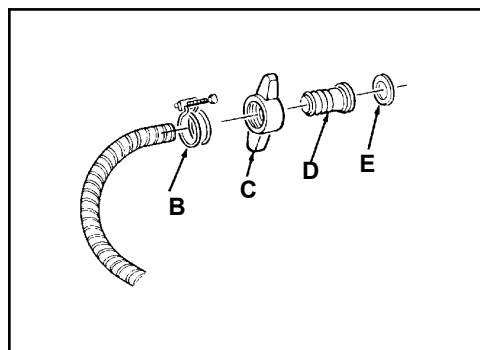


1 inch discharge hose

NOTE

Rubber or fabric hose may be used. Hose can be obtained from local contractor supply companies. Extra fittings are included with the pump.

1. Assemble clamp (B), hose connector (C), hose fitting (D) and sealing washer (E) as shown for suction hose.
2. Attach hose onto discharge port. When 1 inch discharge hose is used, 25 mm to 3/4 inch adaptor (H) is not required.



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 arrestor and a spark arrestor may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

NOTICE: 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.

FUEL



WARNING

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 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, carburetors and other engine components.

Fuel Requirements

Gasoline - Use 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.

Two Stroke Oil - A two-stroke engine oil meeting ISO-L-EGD (ISO/CD 13738) and J.A.S.O. FC/FD Standards must be used. Echo brand premium Power Blend X TM Universal 2-Stroke Oil meets these standards. Engine problems due to inadequate lubrication caused by failure to use an (ISO/CD 13738) and J.A.S.O. FC/FDcertified oil, such as Echo premium Power Blend X TM, will void the two-stroke engine warranty.

IMPORTANT

Echo premium Power Blend X TM 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.

Handling Fuel



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 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.
- Move at least 3m (10 ft.) from refueling location before starting the engine.

Mixing Instructions

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			
U.S.		METRIC	
GAS	OIL	GAS	OIL
Gallons	Fl. oz.	Liter	cc.
1	2.6	4	80
2	5.2	8	160
5	13	20	400

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.

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.

IMPORTANT

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.

IMPORTANT

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

1. Select a firm, level site as near the water source as possible. Never exceed a suction lift (A) of 7.5 m (24 feet) or water will not flow. Make sure pump will not move due to vibration and/or the pull from the weight of suction hose when full of water.
2. Total vertical discharge (B) is the distance the pump is capable of lifting water from the surface of the water to the discharge hose end. The distance must not exceed 29 m (95 ft.), otherwise no water will flow.
3. Make sure all hoses and pipe connections are air tight, and all hose coupling gaskets or o-rings are installed.
4. Keep prime port plug and pump drain plug tightly secured in place during operation.
5. Make sure strainer is in place.
6. Maximum pump efficiency is obtained by:
 - Keeping hoses straight and avoiding kinks and sharp bends in hoses.
 - Using shortest suction lift practical.
 - Using as few connectors, elbows and adaptors as possible.
 - Keeping the pump and associated equipment in good operating condition.

PRIMING THE PUMP

1. All ECHO pumps are self-priming centrifugal pumps. Only a single priming operation at the beginning is needed to allow the pump to be used continuously or intermittently.
2. Remove prime port plug (A) and fill pump housing with water.
3. Replace prime port plug securely, making sure the gasket is on and in good condition.

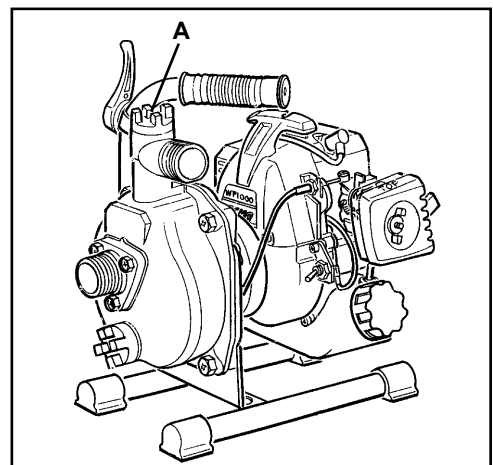
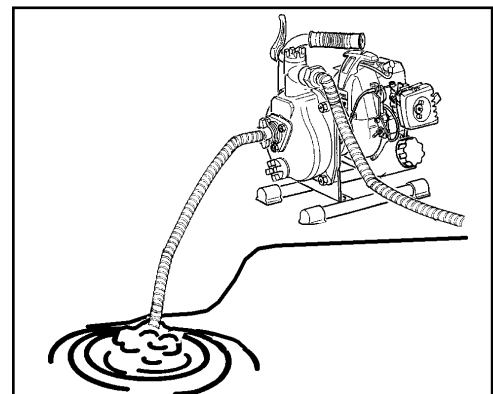
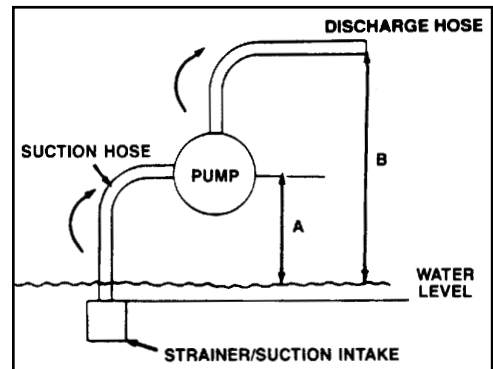
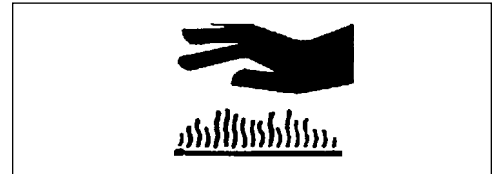
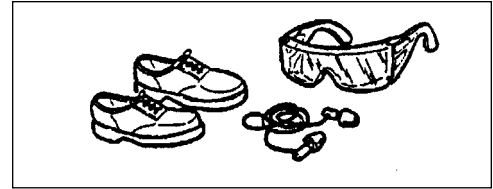
With suction intake and strainer in the water to be pumped, start the engine. (See Starting the Engine.)

IMPORTANT

When priming the pump, operate the engine at half throttle. Should the engine be operated at full throttle during initial prime, water surges alternately followed by air pockets will cause over-speeding, resulting in possible engine damage.

NOTE

With engine running at approximately half throttle, the priming time depends upon the length of suction hose. Priming time can be as short as 30 seconds when lift is less than 1.5 m (5 feet) or as long as 5-7 minutes when pump is some distance from the water and using maximum lift of 7.5 m (24 feet) at sea level.

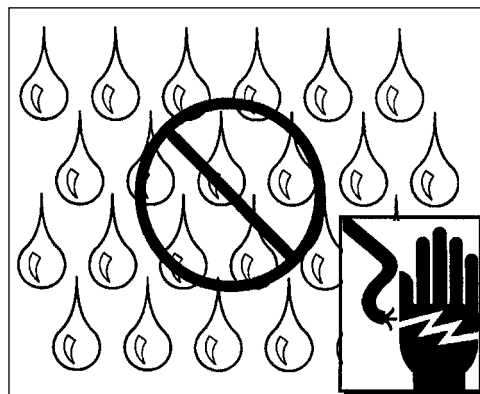




WARNING

Water can be conductor of electric current when exposed to live electrical wiring. Electrocutation will result.

- Do not operate pump in flooded basements without first shutting off electricity from outside the house. Pump should be located outside in a vented area.
- Do not operate pump in flooded areas near power lines unless electric service has been disconnected.



IMPORTANT

- Prolonged pumping of water containing sludge mud and gravel will cause rapid wear to impeller or internal pump parts. Pump only clear water.
- Pump suction lift is affected by water temperatures. Maximum temperature of water should be 60° C (140° F), or lower.
- Internal pump body components will corrode if the pump is used to pump liquids high in acidity or alkaline.

STARTING COLD ENGINE



WARNING

Do not run engine in an enclosed area. Exhaust gas contains carbon monoxide, an odorless and deadly poison.

IMPORTANT

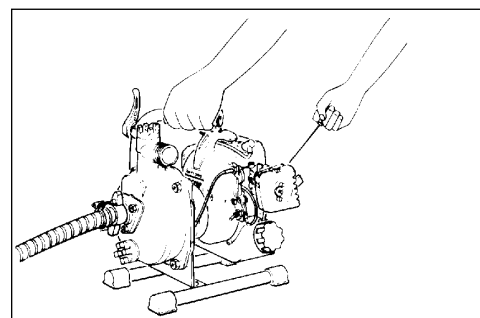
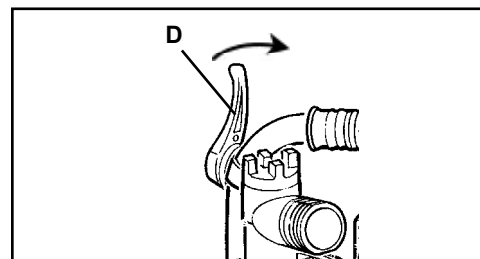
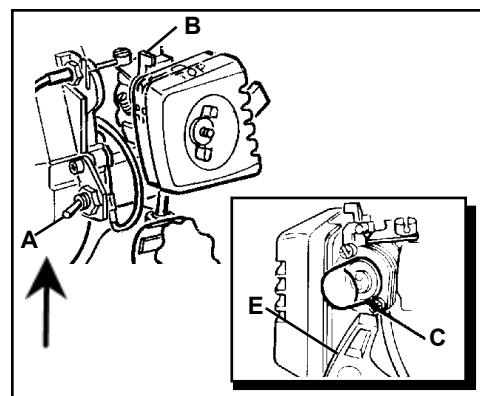
Do not start or run the pump without priming the pump with water. Serious damage to the pump seals will occur when the pump is run dry.

1. Place suction intake and strainer in the water to be pumped prior to starting engine.
2. Place ignition switch (A) in Start/Run position.
3. Move choke (B) to Cold Start () Position.
4. Pump primer bulb (C) until fuel is visible and flows freely in the clear fuel tank return line. Pump bulb an additional 4 or 5 times.
5. Move throttle lever (D) towards engine to idle position.
6. Pull starter handle (E) until engine fires (5 ~ 6 pulls maximum).
7. After engine fires (or 5 ~ 6 pulls), move choke lever (B) to Run () position and pull recoil starter handle/rope until engine starts and runs. Allow unit to warm up at idle for several minutes.

NOTE

If engine does not start with choke in "Run" position after 5 pulls, repeat instructions.

8. Place throttle lever (D) in half throttle position until pump begins to pump water. Then move lever to full throttle.



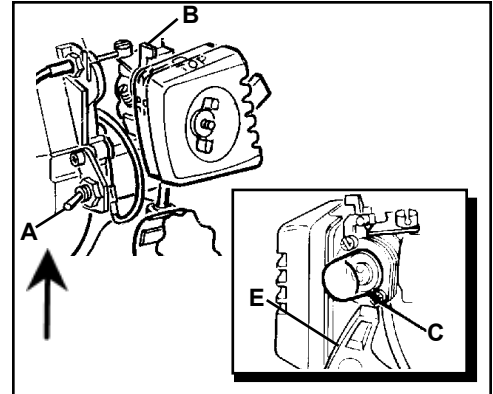
STARTING WARM ENGINE

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

1. Move ignition switch (A) to start, move throttle lever (D) towards engine to idle position. Pull starter handle (E) and engine should start. Do not use choke (B).

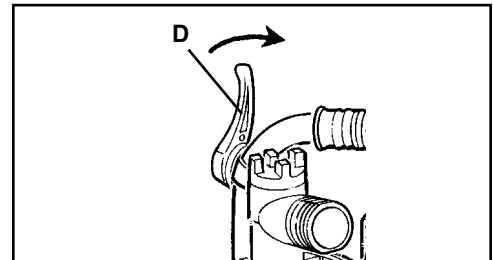
NOTE

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

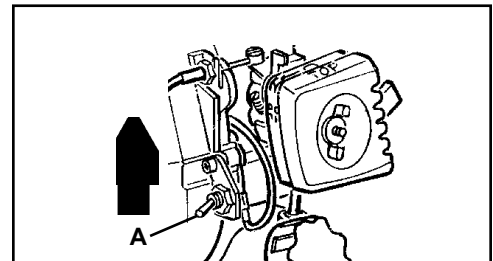


STOPPING ENGINE

1. Move throttle lever (D) towards engine to idle position and allow engine to return to idle before shutting engine off.



2. Move ignition switch (A) to "Stop" position.

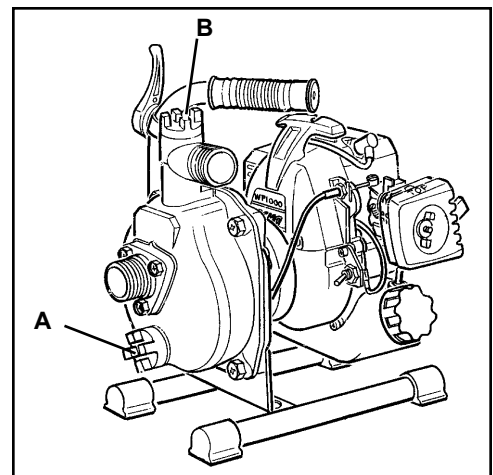


WARNING

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

COLD WEATHER OPERATION

Pumps will not freeze when running. However, in freezing weather, remove drain plug (A) and prime port plug (B) and drain the water from pump completely after use. All hoses exposed to freezing temperatures should also be drained. Before restarting the pump, replace the drain plug and fill plug securely, making sure the gaskets are in place and in good condition to prevent air entry into the pump. Prime the pump.



MAINTENANCE



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. Allow unit to cool before performing service. Wear gloves to protect hands from sharp edges and hot surfaces.

Your ECHO water pump is designed to provide many hours of trouble free service. Regular scheduled maintenance will help your water pump achieve that goal. If you are unsure or are not equipped with the necessary tools, you may want to take your unit to an ECHO Service Dealer for maintenance. To help you decide whether you want to DO-IT-YOUR-SELF or have the ECHO Dealer do it, each maintenance task has been graded.

SKILL LEVELS

Level 1 = Easy to do. Most required tools come with unit.

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

ECHO offers **REPOWER** Maintenance Kits and Parts to make your maintenance job easier. Just below each task heading are listed the various part numbers required for that task. See your ECHO dealer for these parts.

MAINTENANCE INTERVALS

COMPONENT/ SYSTEM	MAINTENANCE PROCEDURE	REQ'D SKILL LEVEL	DAILY OR BEFORE USE	EVERY REFUEL	3 MONTHS OR 90 HOURS	YEARLY 600 HOURS
Air Filter	Inspect/Clean	1	I / C *			
Choke Shutter	Inspect/Clean	1	I / C			
Fuel Filter	Inspect	1			I *	I / R *
Fuel Cap Gasket	Inspect/Replace	1			I *	R *
Fuel System	Inspect/Replace	1	I *	I *		
Spark Plug	Inspect/Clean	1			I / C / R *	
Cooling System	Inspect/Clean	2	I / C			
Muffler Spark Arrestor	Inspect/Clean/Replace	2			I / C / R *	
Cylinder Exhaust Port	Inspect/Clean/Decarbon	2			I / C	
Recoil Starter Rope	Inspect/Clean	1	I / C *			
Screws/Nuts/Bolts	Inspect/Tighten/Replace	1	I *			

MAINTENANCE PROCEDURE LETTER CODES: I = INSPECT, R = REPLACE, C = CLEAN

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

MAINTENANCE PROCEDURE NOTES:

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

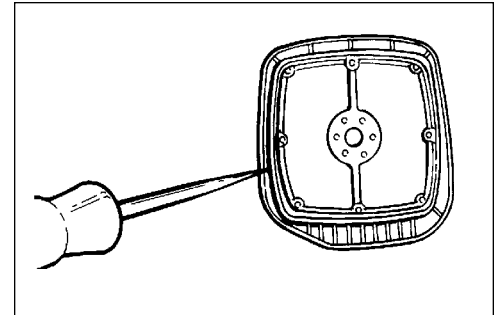
AIR FILTER

Level 1.

Tools required: Cleaning brush, 25 or 50 mm (1 or 2 in.)

Parts required: REPOWER AIR & FUEL FILTER KIT.

1. Close choke (Cold Start Position []). This prevents dirt from entering the carburetor throat when the air filter is removed. Brush accumulated dirt from air cleaner area.
2. Remove air filter cover. Brush dirt from inside cover.
3. 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.
4. If filter can be reused, be certain it:
 - Fits tightly in the air filter cavity.
 - Is installed with the original side out.
5. Install air filter cover.



NOTE

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

FUEL FILTER

Level 1.

Tools required: 200-250 mm (8-10 in.) length of wire with one end bent into a hook, clean rag, funnel, and an approved fuel container.

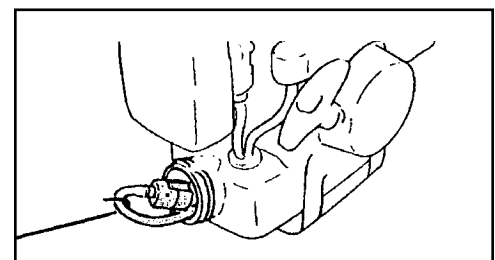
Parts required: REPOWER AIR & FUEL FILTER KIT.



DANGER

Fuel is **VERY** flammable. Use extreme care when mixing, storing or handling.

1. Use a clean rag to remove loose dirt from around fuel cap and empty fuel tank.
2. Use the “fuel line hook” to pull the fuel line and filter from the tank.
3. Remove the filter from the line and install the new filter.



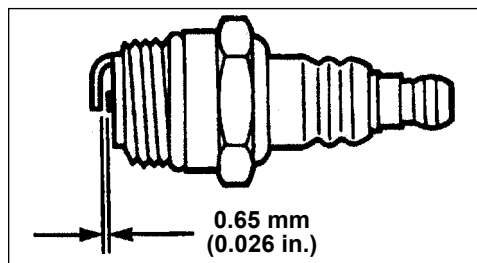
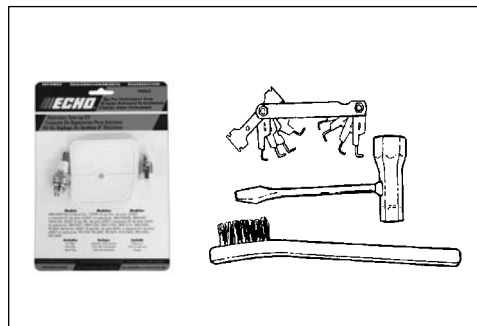
SPARK PLUG

Level 2.

Tools Required: T-Wrench, Feeler gauge, preferably a wire gauge, Soft metal brush.

Parts Required: REPOWER™ Tune-Up Kit

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 in • lbf).



COOLING SYSTEM

Level 2.

Tools required: Cross-head Screwdriver, 3 mm Hex Wrench, Cleaning Brush.

Parts Required: None.

IMPORTANT

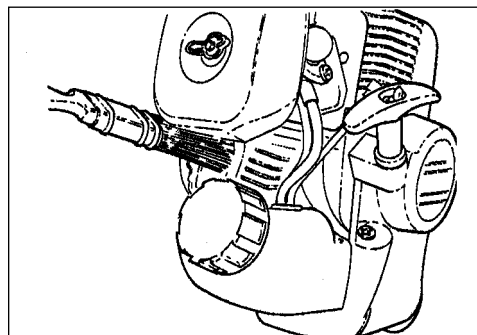
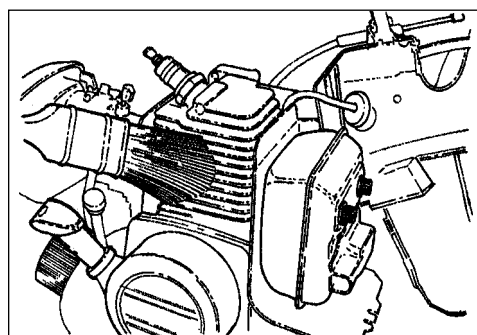
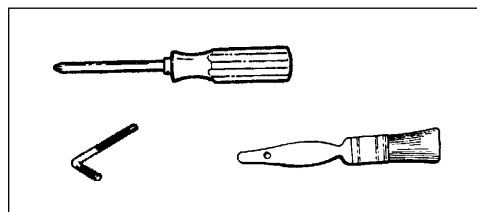
To maintain proper engine operating temperatures, cooling air must pass freely through the cylinder fin area. This flow of air carries combustion heat away from the engine.

Overheating and engine seizure can occur when:

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

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

1. Remove spark plug lead and throttle cable end from the carburetor swivel.
2. Remove the four screws that retain the engine cover. Two at the top of the starter, two on either side of the front. Lift the cover from the engine and lay to the front of the pump.



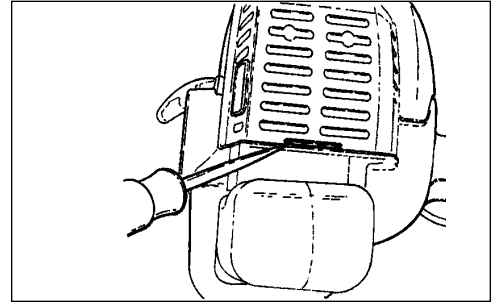
NOTE

The throttle cable remains assembled to the engine cover and the spark plug lead and grommet remain installed.

IMPORTANT

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

3. Use the brush to remove dirt from the cylinder fins.
4. Remove grass and leaves from the grid between the starter and fuel tank.
5. When installing the cover, be certain the tab of the metal deflector shield is in the slot of the cover.



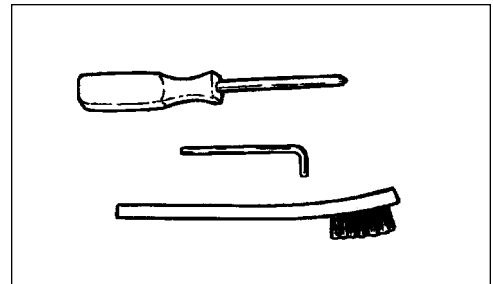
EXHAUST SYSTEM

Spark Arrestor Screen

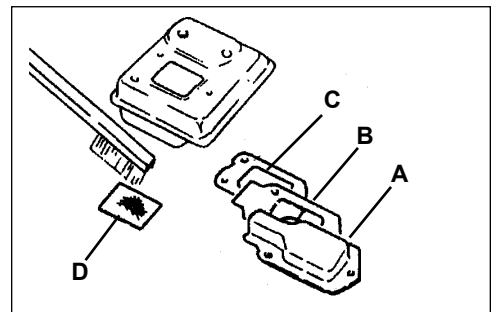
Level 2.

Tools Required: Cross-head Screwdriver, 3 mm Hex Wrench, Soft metal brush

Parts Required: Spark Arrestor Screen, Gasket



1. Remove engine cover. See "Cleaning Cooling System" for step by step instructions.
2. Place piston at Top Dead Center (TDC) to prevent carbon/dirt from entering cylinder.
3. Remove screen cover (A), screen holder (B), gasket (C), and spark arrestor screen (D) from muffler body.
4. Clean carbon deposits from screen (D) and muffler components.
5. Replace screen if it is cracked, plugged or has holes burned through.
6. Install spark arrestor screen, gaskets, and cover.



Exhaust Port Cleaning

Level 2.

Tools required: Cross-head Screwdriver, 3 & 4 mm Hex Wrench,
Wood or plastic scraper

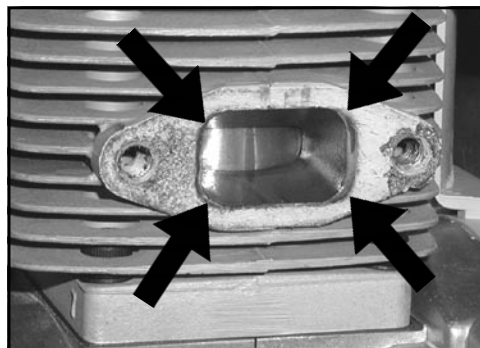
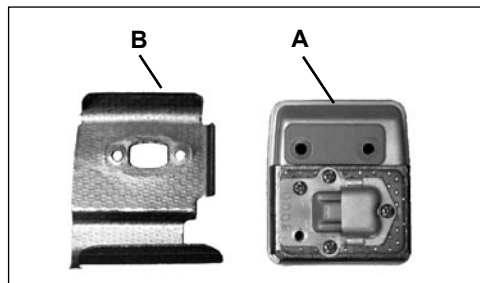
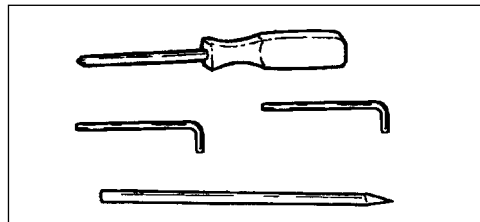
Parts Required: As needed: Heat Shield

1. Remove engine cover. See “Cleaning Cooling System” for step by step instructions..
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.

IMPORTANT

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 50-55 in•lbf (55-65 kgf•cm).
7. Install engine cover and attach spark plug lead and throttle cable.
8. Start engine, and warm to operating temperature.
9. Stop engine, and re-tighten mounting bolts (or nuts) to specifications.



CARBURETOR ADJUSTMENT

Engine Break-In

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

High Altitude Operation

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

IMPORTANT

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

(Emission models with limiter caps)

Level 2.

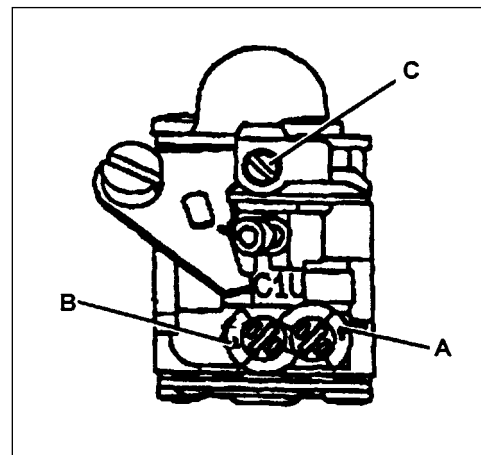
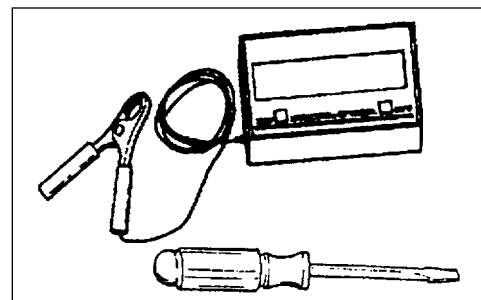
Tools required: Screwdriver, Tachometer (ECHO P/N 99051130017).

Parts required: None.

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.

1. Before adjusting the carburetor, clean or replace the air filter and spark arrester screen.
2. Fill pump housing with clean water.
3. Start engine and run for several minutes to reach operating temperature.
4. Stop engine. Turn HI (A) speed needle CCW (counter clockwise) to stop. Turn LO (B) speed needle midway between full CCW and CW (clockwise) stops.
5. Idle Speed Adjustment.
-Start engine and turn idle (C) speed adjustment screw CW until the engine speed reaches 3000 RPM. Turn screw CCW an additional 1/4 turn.
6. 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.
7. Check HI (A) speed RPM at W.O.T. (Wide Open Throttle). HI speed RPM should be set to specifications found on page 27 "Specifications" of this manual.
8. Check idle speed and reset if necessary. If a tachometer is available, idle speed should be set to the specification found on page 27 "Specifications" of this manual.



(Non Emissions Models Without Limiter Caps)

Tools Required: Screwdriver, Tachometer (ECHO P/N 90051130017).

1. Before adjusting the carburetor, clean or replace the air filter and spark arrester screen.
2. Fill pump housing with clean water.
3. Start engine and run for several minutes to reach operating temperature.

Idle Speed Adjustment

Turn "idle" speed adjustment screw (C) CW (clockwise) until engine speed reaches 3000 RPM. Turn screw out, CCW an additional 1/4 turn.

Basic Setting

1. Stop engine and turn both LO (B) and HI (A) needles in, CW until they stop and are lightly seated.

IMPORTANT

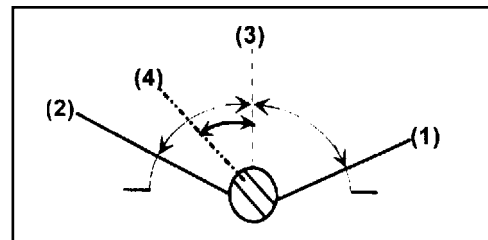
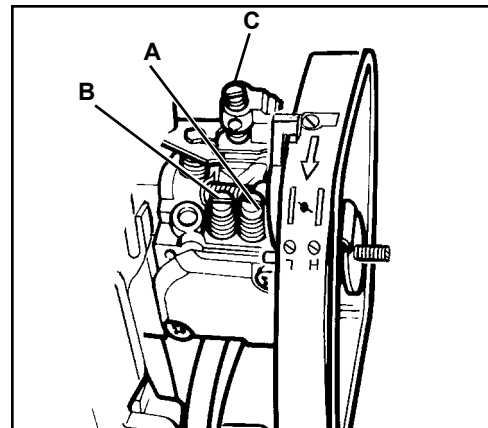
DO NOT over tighten needles. Forcing them to tighten will damage the carburetor.

2. Turn LO (B) needle out, CCW 1-1/4 turns. Turn HI (A) needle out CCW 1-1/4 turns.

Fine Tuning

(Requires Accurate Tachometer)

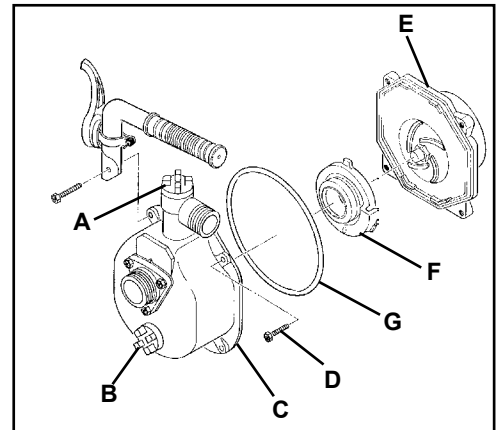
1. Start engine and allow to warm to operating temperature (minimum 2 - 3 minutes) varying engine speed from idle to full throttle.
2. Always begin fine tuning with LO (B) needle.
 - a. Lean drop-off - With engine idling, turn LO (B) needle slowly CW (in) to lean drop-off point. RPM will increase, then abruptly drop-off. Note this position. (1)
 - b. Rich drop-off - With engine idling, slowly turn LO (B) needle CCW (out) to rich drop-off point. RPM will increase then gradually slow and drop-off. Note this position. (2)
 - c. Final setting - Set needle at mid point between lean rich drop-off points. (3)
 - d. Turn needle 1/8 turn CCW (out) making mixture slightly richer. (4)
3. HI speed adjustment.
Adjust HI (A) needle with tachometer. Refer to Wide Open Throttle RPM settings listed in "Specifications" on page 27.
4. Check idle speed and reset if necessary. If tachometer is available, idle speed should be set to the specifications found on page 27 "Specifications" of this manual.



PUMP CASING

Should the pump become clogged with debris:

1. Disconnect the spark plug wire.
2. Remove the prime port plug (A) and drain plug (B) from the pump housing (C) and drain the water from the pump.
3. Remove the four bolts (D) securing the pump housing to the pump case (E).
4. Remove the pump housing, pump volute (F) and remove any debris from the pump casing and pump volute.
5. Install the o-ring (G) taking care not to damage it (coat o-ring with lithium base grease).
6. Install the volute and the pump housing to the pump casing. Insert four bolts carrying handle and pump stand. Tighten evenly in a crisscross fashion. (Do not over tighten, to prevent case or cover deformation.)
7. Install the drain plug (B) in the pump housing.
8. Fill the pump with water through the prime port and check to insure that there is no leakage. Install prime port plug.
9. Install the spark plug wire.



TROUBLESHOOTING

ENGINE PROBLEM TROUBLESHOOTING CHART

Problem	Check	Status	Cause	Remedy
Engine cranks - starts hard/ doesn't start	Fuel at carburetor	No fuel at carburetor	Fuel strainer clogged Fuel line clogged Carburetor	Clean or replace Clean or replace See your Echo dealer
	Fuel at cylinder	No fuel at cylinder	Carburetor	See your Echo dealer
		Muffler wet with fuel	Fuel Mixture too rich	Open choke Clean/replace air filter Adjust carburetor See your Echo dealer
	Spark at end of plug wire	No spark	Stop switch off Electrical problem Interlock switch	Turn switch to ON See your Echo dealer See your Echo dealer
	Spark at plug	No spark	Spark gap incorrect Covered with carbon Fouled with fuel Plug defective	Adjust to .65mm (0.026 in.) Clean or replace Clean or replace Replace plug
Engine runs, but dies or does not accelerate properly	Air filter	Air filter dirty	Normal wear	Clean or replace
	Fuel filter	Fuel filter dirty	Contaminants/residues in fuel	Replace
	Fuel vent	Fuel vent plugged	Contaminants/residues in fuel	Clean or replace
	Spark Plug	Plug dirty/worn	Normal wear	Clean and adjust or replace
	Carburetor	Improper adjustment	Vibration	Adjust
	Cooling System	Cooling system dirty/plugged	Extended operation in dirty/dusty locations	Clean
	Spark Arrestor Screen	Spark arrestor screen plugged	Normal wear	Replace
Engine does not crank	N/A	N/A	Internal engine problem	See your Echo dealer



DANGER

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

TROUBLESHOOTING PUMP END

No water delivered or not enough water delivered	• Pump not primed • Speed too low • Suction line clogged • Suction lift too high • Air leak in suction line	• Fill pump body with water. • Pump should operate at 5600-6300 rpm. • Clean suction opening. • Locate pump closer to water. • Tighten connections or replace with new hose or pipe. Use pipe compound to seal threads.
	• Impeller plugged. • Suction end not submerged deep enough.	• Clean impeller. • Submerge suction hose or piping enough so no air enters while pump is operating.
Not enough pressure	• Speed too low. • Worn impeller.	• Engine should operate at 5600-6300 rpm. • Replace impeller.
Pumps water, then stops	• Suction line out of water. • Suction lift too high. • Pump clogs with debris. • Suction strainer clogs. • Pump seal worn.	• Lower suction line into water. • Locate pump nearer water. • Clean pump and impeller. • Clean strainer. • Replace seal. (ECHO Dealer)
Pumps water, then stops	• Foreign matter settled or solidified inside the pump. Impeller is clogged by solid debris.	• Remove pump casing and clean the pump

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.



DANGER

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

2. Place the ignition 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 the fuel tank completely and pull the starter handle several times to remove fuel from the carburetor.

7. Remove the spark plug and pour 7 cc (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. Plug the recoil starter handle 2-3 times to distribute the oil inside the engine.
 - C. Observe the piston location through the spark plug hole. Pull the 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. Using garden hose, run clear water through the pump, hoses and strainer.
10. Remove prime port plug and fill the pump housing with 50/50 solution of water and antifreeze.
11. Disconnect suction and discharge hoses.
12. Place a suitable cover over pump.

Removing Pump from Storage

1. Remove spark plug. Cover spark plug hole with clean rag.
2. Pull starter handle several full strokes to remove oil from cylinder.
3. Check spark plug gap; install plug. Connect spark plug cable.
4. Check that guards and shields are fastened in place.
5. Fill fuel tank with fresh fuel mix. (See Fuel section)
6. Install suction and discharge hoses making sure the connections are air tight.
7. Be sure to reinstall pump drain plug securely and prime the pump before starting.
8. Install prime port plug securely.

SPECIFICATIONS

MODEL -----	WP-1000
Length -----	310 mm (12.2 in.)
Width -----	226 mm (8.9 in.)
Height -----	305 mm (12.0 in.)
Weight (dry) -----	5.4 kg (11.9 lb.)
Engine Type -----	Air cooled, two-stroke, single cylinder gasoline engine
Bore-----	32.2 mm (1.268 in.)
Stroke-----	26.0 mm (1.04 in.)
Displacement -----	21.2 cc (1.29 cu. in.)
Exhaust-----	Spark arrestor muffler or spark arrestor muffler with catalyst
Carburetor-----	Zama w/purge
Ignition System -----	Flywheel magneto, capacitor discharge ignition type
Spark Plug -----	NGK BPM-7A Gap 0.65 mm (0.026 in.)
Fuel -----	Mixed (Gasoline and Two-stroke Oil)
Fuel/Oil Ratio -----	50 : 1 Power Blend X™ ISO-L-EGD (ISO/CD 13738) and J.A.S.O. M345- <u>FC/FD</u> , 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-15 or E-85.
Oil-----	Power Blend X™ Premium Universal 2-Stroke Oil
Fuel Tank Capacity -----	0.4 lit. (13.5 US fl. oz.)
Starter System -----	Automatic Rewind Starter
Maximum Suction Lift-----	7.5 m (24.6 ft.)
Maximum Total Head -----	29 m (95.1 ft.)
Maximum Discharge -----	105 liters/min. (27.7 gal/min. 1662 gal/hr.)
Impeller Material -----	Cast Iron
Volute Material-----	Cast Iron
Seal Type-----	Carbon Ceramic Seal
Idle Speed-----	2400 - 3200 RPM
Wide Open Throttle Speed (W.O.T.) -----	5600 - 6300 RPM
Maximum Vertical Suction Lift-----	7.5 m (24 ft.)
Total Maximum Vertical Discharge -----	Vertical Suction plus Vertical Discharge = 29 m (95 ft.)

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 tines 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 tines, 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.

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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NOTES

SERVICING INFORMATION

PARTS/SERIAL NUMBER

Genuine ECHO Parts and ECHO REPOWER™ 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, Type and Serial Number of the unit with you. You can find these numbers on the engine housing. For future reference, write them in the space provided below.

Model No. _____ SN. _____

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. 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 you may call the ECHO Consumer Product Support Department at 1-800-673-1558 from 8:30 am to 4:30 pm (Central Standard Time) Monday through Friday. Before calling, please know the model and serial number of your unit.

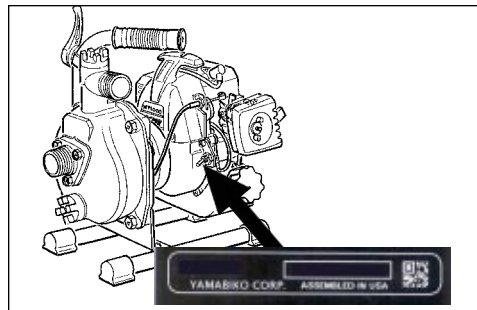
WARRANTY REGISTRATION

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 between you and ECHO if we find it necessary to contact you.

ADDITIONAL OR REPLACEMENT MANUALS

Replacement Operator, Safety Manuals, and Parts Catalogs are available from your ECHO dealer or at www.echo-usa.com or by contacting ECHO Inc., 400 Oakwood Road, Lake Zurich, IL 60047 (800-673-1558). Always check the ECHO Web Site for updated information.

Safety Videos are available from your Echo dealer. A \$5.00 shipping charge will be required for each video.



DEALER?

Call

1-800-432-ECHO

1-800-432-3246

or

www.echo-usa.com

CONSUMER PRODUCT SUPPORT

1-800-673-1558

8:30 - 4:30 Mon - Fri C.S.T.



ECHO

ECHO, INCORPORATED

400 Oakwood Road

Lake Zurich, IL 60047-1564

www.echo-usa.com

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