OPERATOR'S MANUAL

REC-600 ENGINE COMPRESSOR

SERIAL NUMBER
001001 & UP

WARNING ⚠ DANGER

READ INSTRUCTIONS CAREFULLY AND FOLLOW RULES FOR SAFE OPERATION. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY.

ECHO®

INTRODUCTION

This ECHO Product is a lightweight, backpack two-cycle engine compressor designed to provide compressed air for operation of ECHO approved pneumatic attachments.

The Operator's Manual provides information necessary for assembly, operation and maintenance of the backpack compressor only.

If you require a replacement or additional manual, please write to:

ECHO, INCORPORATED
400 Oakwood Road
Lake Zurich, IL 60047
ATTN: Technical Publications

WARNING ⚠ DANGER

ECHO provides an operators manual for the backpack compressor and for each ECHO approved attachment.
This manual and the attachment manual must be read for proper and safe operation. Follow rules for safe operation and operating instructions carefully.

CONTENTS

PAGE NO.

DESCRIPTION 2

OPERATION 3

FUEL 4

STARTING AND STOPPING 5

SERVICE 6

SERVICE MAINTENANCE 8

TROUBLESHOOTING 8

STORAGE 9

SPECIFICATIONS 10

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.

DECALS

WARNING ⚠ DANGER

See Starting and Stopping information located at the bottom of the starter housing.

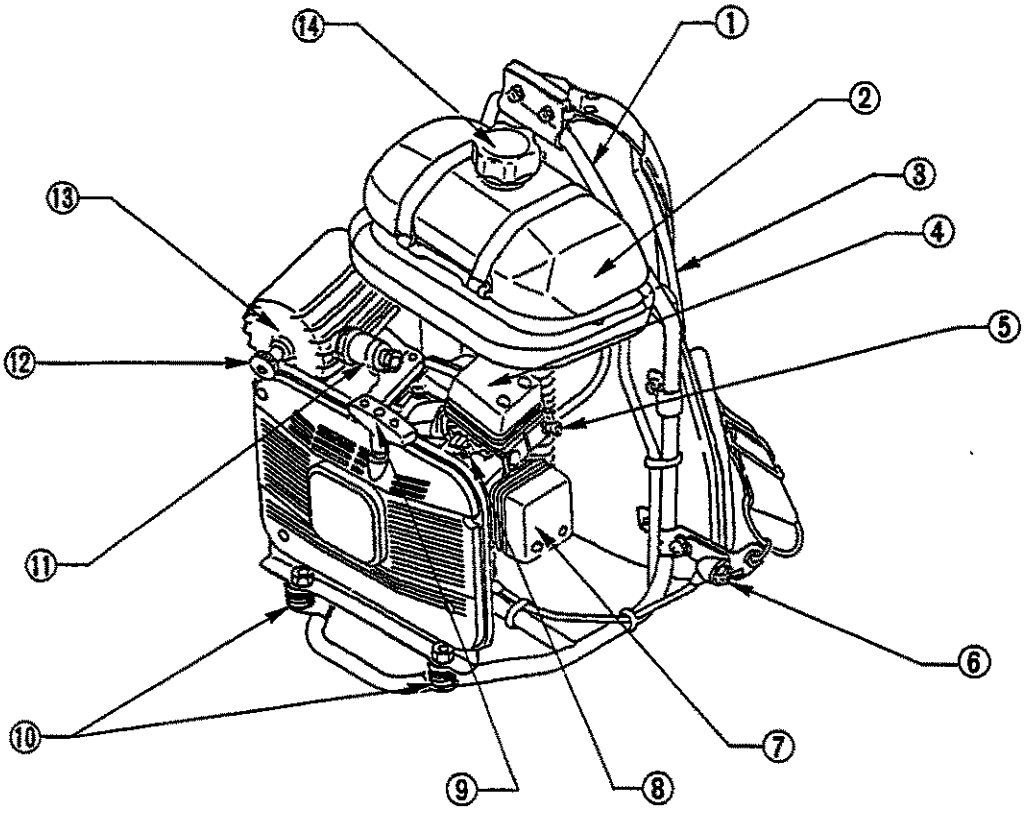
IMPORTANT

Starting - Air bleed valve must be open while starting, retained air pressure will damage the unit.

WARNING ⚠ DANGER

Stopping - Open air bleed valve before stopping engine. Retained air pressure can operate tools when trigger is pulled after engine is stopped. Unexpected tool operation can result in serious injury.

DESCRIPTION



① Backpack Frame.

② Fuel Tank - contains fuel line and fuel filter.

③ Backpack Harness.

④ Air cleaner - contains replaceable foam element.

⑤ Choke Rod - Controls operation of choke. Pull choke rod out to close (cold starting position) choke. Push choke into open (run position) choke.

⑥ Ignition Switch - toggle switch on right side of frame. Move toggle Up to Run, Down to Stop.

⑦ Compressor Air Cleaner - Contains replaceable foam element.

⑧ Carburetor - Regulates fuel to the engine. Has idle speed and LO speed mixture adjustment.

⑨ 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 will occur.

⑩ Isolators (3) - Two under starter, one in rear. Reduces engine vibration to operator.

⑪ Relief Valve - Safety valve that prevents compressor tank from excessive pressure.

⑫ Air Bleed Valve - Used to relieve air pressure from compressor tank during engine start up. Air pressure must be relieved otherwise engine damage may result. Turn counterclockwise to open valve, clockwise to close valve.

⑬ Air Tank - Holds compressed air

⑭ Fuel Tank Cap - Incorporates fuel tank vent and seals fuel tank.

OPERATION

OPERATOR SAFETY

- Read this Back Pack Compressor Operator's Manual carefully. Be sure you understand how to operate this unit properly before you use it.
- Wear non-skid sole shoes. Do not wear open toed shoes or operator unit while bare footed.
- Wear proper clothing to protect your body.
- Wear eye, head and hearing protection devises.
- Use Caution when handling fuel. Put the gas caps back tightly on both the gas can and the engine fuel tank. Move at least 10 feet from the re-fueling point and be sure there is no leakage of fuel form the gas cap or the fuel system before starting the engine.
- Operate this gasoline engine powered equipment in a well-ventilated area only.
- Start the unit on the ground.
- Never start the backpack compressor without the air bleed valve open. Retained air pressure will damage the unit.

WARNING ⚠ DANGER

When transporting, checking or adjusting unit be sure the engine is stopped. Open air bleed valve before stopping engine. Retained air pressure can operator tools when trigger is pulled after engine is stopped. Unexpected tool operation can result in serious injury.

PROTECTIVE EQUIPMENT

- Always wear eye protection goggles that meet ANSI Z 87.1 requirements (Z87 is stamped on the goggles).
- Wear hearing protection at all times. If this guideline is not followed, hearing loss can occur. The Occupational Health and Safety Act of 1970 requires the wearing of hearing protection if you use the unit more than two hours per day. Since the guidelines could be revised to require the wearing of hearing protection if you use the unit for less than two hours per day, we recommend that hearing protection be worn at all times.
- Wear snug fitting, durable clothing. Avoid wearing loose clothing, unconfined long hair or accessories that could become entangled and cause injury.
- Wear shoes with non-skid soles to ensure proper footing.

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. Operate only when your mind and body are sound.

WARNING ⚠ DANGER

PRECAUTION AGAINST VIBRATION AND COLD

It is believed that a condition called Raynaud's Phenomenon which affects the fingers of certain individuals is brought about by exposure to cold and vibration. Accordingly, your ECHO backpack compressor has shock mounts designed to reduce the intensity of vibration. Exposure to cold and vibration may cause tingling and burning sensations, followed by loss of color and numbness in a person's fingers. We strongly recommend taking the following precautions because the minimum exposure which might trigger the ailment is unknown.

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

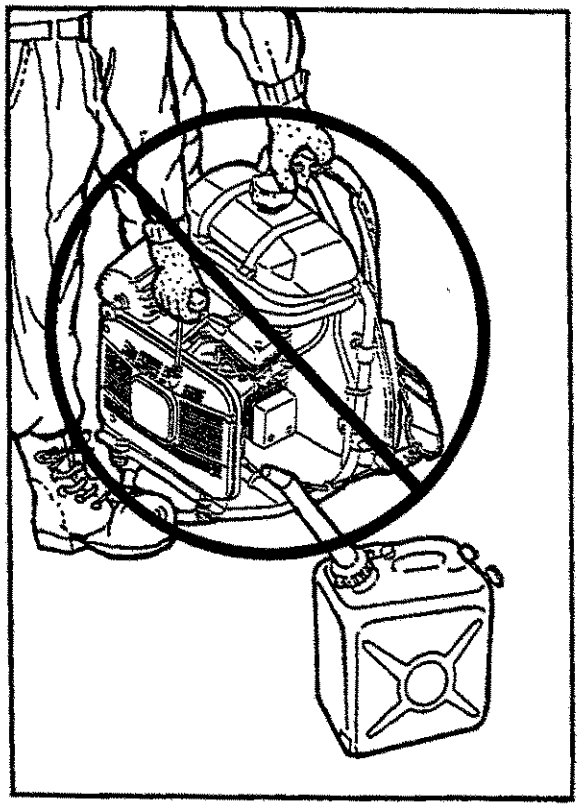
FUEL

HANDLING FUEL

WARNING ⚠ DANGER

Handle fuel carefully. It is extremely flammable. Follow all rules listed below to help prevent fire or explosion which may result in severe injury or death.

- Never smoke or allow flame or sparks near fuel.
- Always fill the fuel tank outdoors. Never pour fuel indoors.
- Never refuel the engine when it is hot or running.
- Always use an approved, safe fuel container.
- After fueling, always wipe up spilled fuel.
- Do not overfill the tank. Always move at least 10 feet away from the fueling spot and make sure there is no fuel leakage before starting the engine.
- Never store the backpack compressor with fuel in the tank - a fuel leak could start a fire. Store fuel in an approved container.
- Always remove the fuel cap slowly to relieve any pressure buildup in the tank.
- Always tighten fuel cap on backpack compressor and fuel container.



MIXING FUEL

Fuel

The engine uses two-stroke fuel, a mixture of gasoline and specially blended ECHO branded 2-stroke oil. Mix ECHO Premium Oil (50:1) to 100:1.

Gasoline

Use branded 89 octane $\frac{R+M}{2}$ unleaded gasoline or gasohol. Gasohol may contain maximum 10% ethyl (grain) alcohol or 15% MTBE (methyl tertiary-butyl ether) no methyl (wood) alcohol.

Mixing Fuel

Follow directions on oil container.

Storing Fuel

Store fuel only in clean, safe, approved containers. Check and follow local ordinances on type and location of storage containers.

IMPORTANT

Two-stroke fuel may separate. Shake fuel container thoroughly before each use.

IMPORTANT

Stored fuel ages. Do not mix more fuel than you expect to use in a month.

STARTING AND STOPPING

SAFE STARTING TECHNIQUES

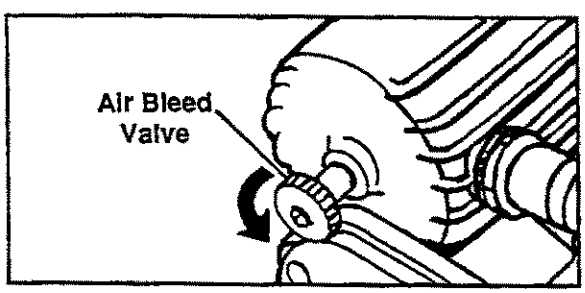
NOTE

- Check unit for loose nuts, bolts and screws before starting.
- Always clear work area of debris before starting operation.
- Start unit on the ground with throttle set at idle.
- When pulling starter rope, use short pulls, 1/2 to 2/3 of rope length.
- Do not allow the starter handle to snap back against the housing.
- Always hold the unit firmly.

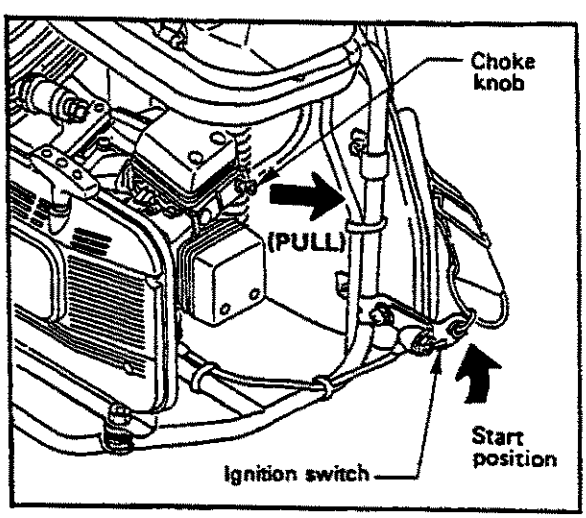
STARTING COLD ENGINE

IMPORTANT

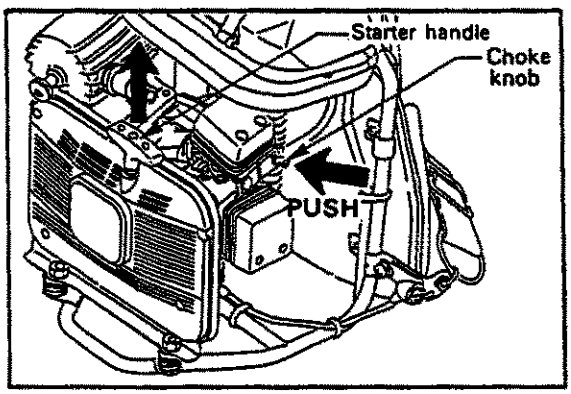
Air bleed valve must be open while starting. Retained air pressure will damage the unit.



1. Move ignition switch toggle up to start position.
2. Pull choke rod out to close choke.



3. Pull starter rope until engine fires.
4. Open choke pushing choke rod all the way in.



5. Restart engine and allow to warm up.
6. After engine is warmed up (2-3 min.) close the air bleed valve to pressurize air tank.

STARTING WARM ENGINE

1. Move ignition switch toggle up to START position.
2. Be certain choke is open.
3. Start engine at idle.
4. Pull starter handle.

NOTE

If engine does not start after 4 pulls, use cold start procedure.

STOPPING ENGINE

WARNING ⚠ DANGER

Open air bleed valve before stopping engine. Retained air pressure can operate tools when trigger is pulled after engine is stopped. Unexpected tool operation can result in severe injury.

1. Open air bleed valve.
2. Move ignition switch down.

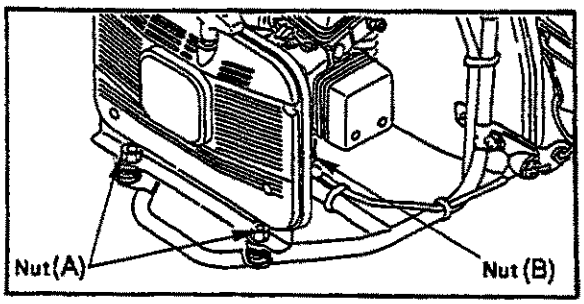
WARNING ⚠ DANGER

If engine does not stop, close choke to stall engine. Have your ECHO dealer inspect and repair ignition switch before using backpack compressor.

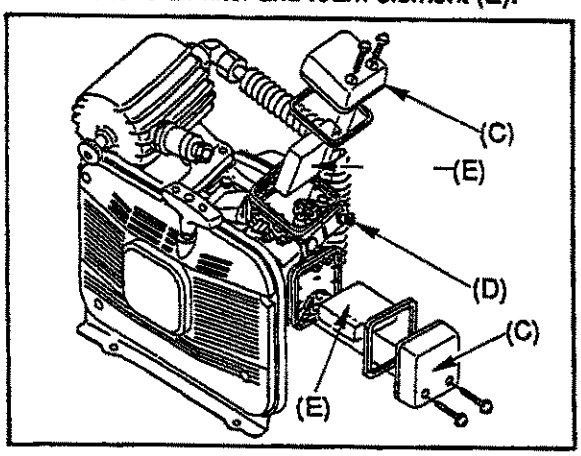
SERVICE

CLEANING AIR FILTER (Engine)

1. Remove isolator retaining nuts at isolator on bottom right side of starter case (A) and isolator located in front of muffler (B).

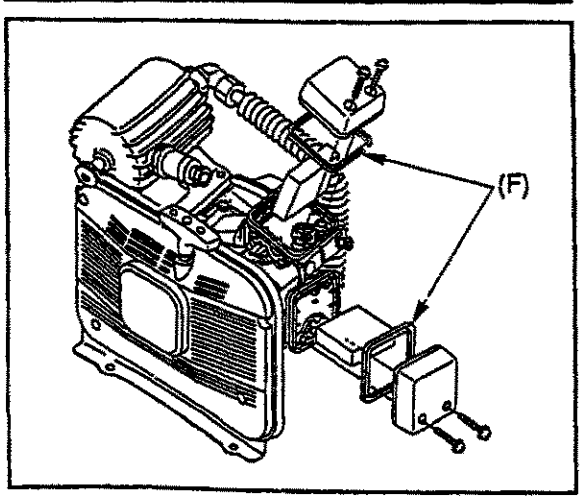


2. Lift and swing engine away from backpack frame for access to air filter cover (C).
3. Close choke (D).
4. Remove two (2) air filter cover bolts. Remove air filter and foam element (E).



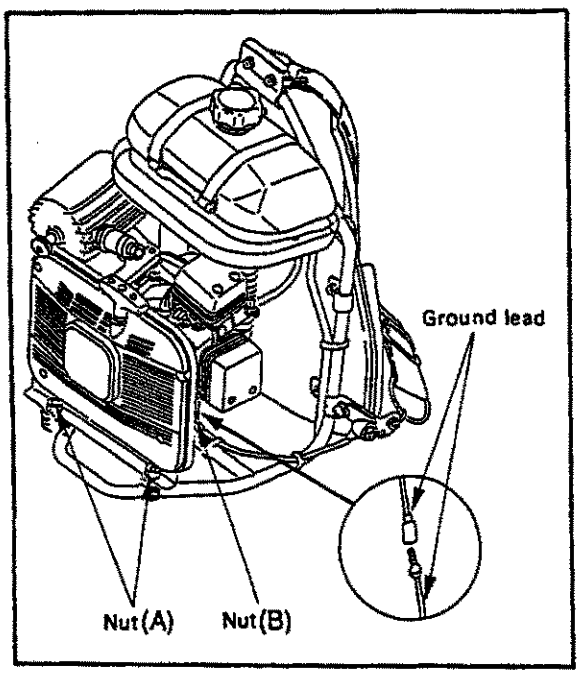
5. Brush dirt from foam element or clean with compressed air.
6. Reinstall foam element, air filter cover and bolts.

NOTE
Be sure that rubber seal (F) is installed correctly around air filter cover edge to insure air box integrity at time of reassembly.



7. Lift and position engine and isolator mounts into place on frame brackets.
8. Install and tighten isolator mounting nuts.

NOTE
Be sure to reinstall ignition switch ground lead onto muffler isolator threaded end against the frame before assembling nut.



CLEANING AIR FILTER (Compressor)

Follow steps 4, 5, & 6 above.

FUEL SYSTEM INSPECTION

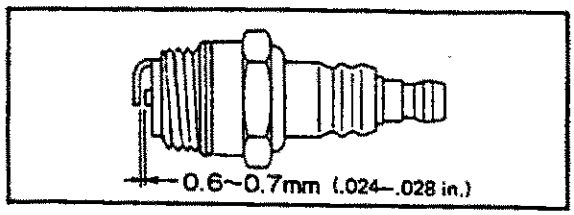
Poor quality fuel, e.g. high alcohol content, can cause rapid deterioration of plastic and rubber components. Due to unknown fuel quality, it is important that internal and external fuel lines, fuel cap gaskets, carburetor diaphragms and all other plastic and rubber fuel system components be checked a minimum of twice yearly (more often when unit is used commercially). Replace and part that is defective or questionable.

REPLACING FUEL FILTER (Check Periodically)

1. Use a piece of steel wire to pick up fuel filter through fuel tank opening.
2. Pull old filter from fuel line.
3. Install new filter element.

CHECK SPARK PLUG (Check Periodically)

1. Check plug gap. Correct gap is 0.6-0.7mm (0.024-0.028).
2. Inspect electrode for wear.
3. Inspect insulator of oil or other deposits.
4. Replace plug if needed, tighten to 145-155 kg - cm (125-135 in. lb.)



CARBURETOR ADJUSTMENT (As Needed)

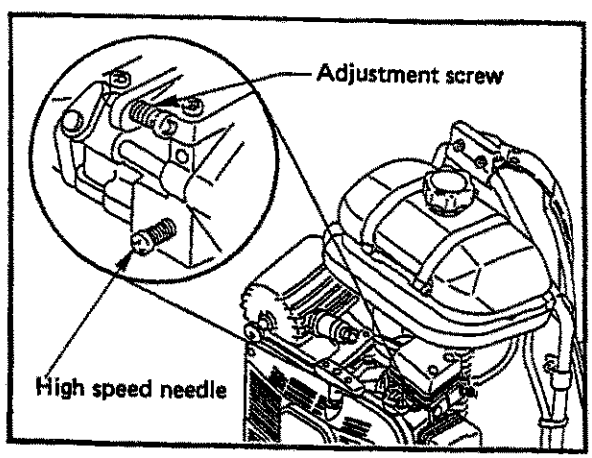
Carburetor is set at factory.
Normally, further adjustment is unnecessary.
If adjustment becomes necessary, use the following procedure.

ADJUSTMENT SCREW

1. Start engine and allow it to warm up.
2. Turn screw clockwise to increase engine speed.
3. Turn screw counter clokwise to decrease engine speed.

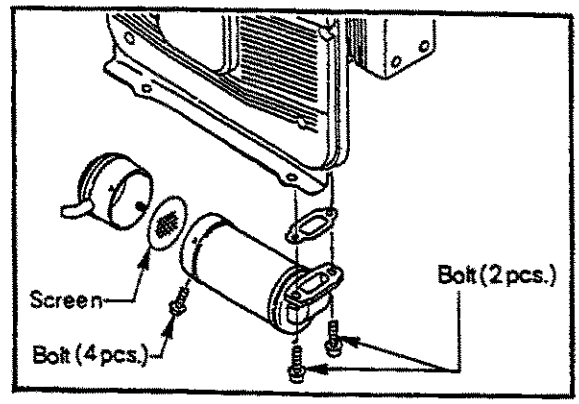
HIGH SPEED NEEDLE

Nominal setting: 1-$\frac{1}{2}$~2 turns open.



CLEANING MUFFLER AND EXHAUST PORT (Check Periodically)

1. Remove nut (A) securing muffler bracket to right bottom side of crankcase.
2. Remove two (2) bolts securing muffler to engine on the left side.



3. Remove four (4) bolts holding muffler lid and spark arrestor screen. Replace screen if it is plugged, cracked or has holes burned through it.
4. Pull engine over until piston wall closes exhaust port. Clean deposits from muffler, spark arrester screen and cylinder exhaust port, with a soft metal brush or wood scraper tool.

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

5. Inspect gasket, replace if necessary.
6. Install spark arrester screen and muffler cover.
7. Install muffler tightening bolts and nut securely.

COOLING SYSTEM MAINTENANCE

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, or
- 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 cylinder fins is considered "Normal Maintenance". Any resultant failure attributed to lack of maintenance is not warranted.

The cooling system relies on cooling air entering the engine through a grille located on the starter. The cooling fan pushes this air through the cylinder area.

SERVICE MAINTENANCE GUIDE

AREA	MAINTENANCE	PAGE	BEFORE USE	MONTHLY	YEARLY
Air Filter	Clean/Replace	6		●	
Fuel Filter	Inspect/Replace	6		●	
Spark Plug	Inspect/Clean/ Adjust/Replace	7		●	
Carburetor	Adjust	7			●
Cooling System	Inspect/Clean	7	●		
Muffler (Spark Arrestor)	Inspect/Clean	7		●	
Starter Rope	Inspect/Replace	6		●	
Fuel Leaks	Inspect/Repair		●		
Screws, Bolt & Nuts	Inspect, Tighten/ Replace		●		
Fuel Line	Inspect	6		●	

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

TROUBLESHOOTING

Problem			Cause	Remedy
Engine —starts hard —does not start				
Engine Cranks	Fuel at carburetor	No fuel at carburetor	•Fuel strainer clogged •Fuel line clogged •Carburetor	•Clean. •Clean. •See your Echo dealer
	Fuel at cylinder	No fuel at cylinder	•Carburetor	•See your Echo dealer
		Muffler wet with fuel	•Fuel mixture is too rich	•Open choke •Clean/replace air filter •Adjust carburetor •See your Echo dealer
	Spark at end of plug wire	No spark at end of plug wire	•Ignition switch off •Electrical problem	•Turn switch on •See your Echo dealer
	Spark at plug	No spark at plug	•Spark gap incorrect •Covered with carbon •Fouled with fuel •Spark plug defective	•Adjust. 0.6-0.7 mm (0.024-0.028) •Clean or replace. •Clean or replace. •Replace plug
Engine does not crank			•Internal engine problem	•See your Echo dealer
Engine runs	Dies or Accelerates poorly		•Air filter dirty •Fuel filter dirty •Fuel vent plugged •Spark plug •Carburetor •Cooling system plugged •Exhaust port/spark arrestor screen plugged	•Clean or replace •Replace •Plugged •Clean and adjust/replace •Adjust •Clean •Clean

STORAGE

LONG TERM STORAGE (Over 60 Days)

Do not store your unit for a prolonged period of time (60 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.

WARNING ⚠ DANGER

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

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 screw 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 1/4 oz. (1/2 tablespoon) 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 2-3 times to distribute the oil inside the engine.
   C. Observe the piston location through the spark plug hole. Pull the recoil handle slowly until the piston reaches the top of its travel and leave it there.
8. Install the spark plug (do not connect ignition cable).

SPECIFICATIONS

Dimemsions	Length	270 mm (10.6 in.)
	Width	340 mm (13.4 in.)
	Height	460 mm (18.1 in.)
	Dry weight	8.5 kg (18.7lbs)
Engine	Type	Kioritz, air-cooled, two-stroke, single cylinder reed valve, ventilated piston
	Rotation	Counterclockwise when viewed from starter
	Displacement	32.3 cm^3 (1.968 in^3)
	Bore	37.0 mm (1.457 in.)
	Stroke	30.0 mm (1.181 in.)
	Compreesion ratio	6.5:1
	Speed with no load	4000 ~ 4500 RPM
	Speed with full load	3500 ~ 3800 RPM
Carburetor	Type	Diaphragm horizontal design Walbro WT-87B
	Venturi size -Throttle bore	7.9 - 12.7 mm (5/16 -1/2 in.)
	Idle Adjuster intial setting	5 turns in
	H needle intial setting	1-1/2 turns back
Ignition	Type	CDI (Capacitor discharge ignition) system
	Spark plug	CJ-6Y
	Spark plug gag	0.6 ~ 0.7 mm (0.024 ~ 0.028 in.)
Starter	Type	Automatic rewind
	Rope diameter x length	4.0 x 900 mm (0.16 x 35.4 in.)
Fuel	Type	Pre-mixed two-stroke fuel
	Tank capacity	1100cm^3 (38.7 U.S. fl. oz.)
Compressor	Bore	38.0 mm (1.496 in.)
	Stroke	30.0 mm (1.181 in.)
	Discharge volume	60 L/min. (2.1 $ft.^3$/mi.) / at 3500 ~ 3800 RPM
	Regulator	Safety relief valve
	Cooling system	Forced air cooling
	Air outlet port	1/4 in. with ball valve
	Air tank capacity	0.4 L (24.4 $in.^3$)
Regulating pressure		8.5 kgf/cm^2 (120 psi)
Working pressure		7.0 kgf/cm^2 (100 psi)

PARTS CATALOG

To obtain a parts catalog send a check or money order for $2.00 per parts book made payable to ECHO, INCORPORATED and state on a sheet of paper the part number of the manual you require your name and address and mail to:

ECHO, INCORPORATED
400 Oakwood Road
Lake Zurich, IL 60047

If you require additional parts books, you may order them by writing down the model number and serial number of the ECHO unit you have and send it along with $2.00 per parts book.

Parts Catalog
REC-600 S/N 001001 & UP P/N 999222 02404

ECHO, INCORPORATED
400 Oakwood Road
Lake zurich, IL 60047

999222 02403
03/93
Printed in Japan 9305 En (S)