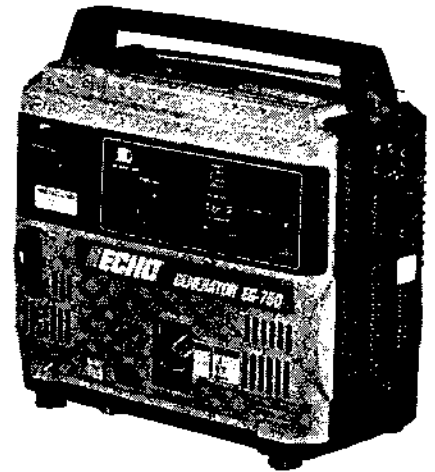




OPERATOR'S MANUAL

ECHO GENERATORS EG-550 EG-750

CAUTION

Read Rules for safe Operation
and Instructions Carefully.



898 560-8016 1

CONTENTS

1. Specifications	1
2. External View	2
3. Safety Precautions	3
Learn Generator Safety / Protect People and Pets / Handle Fuel Safely / Operate Engine/Generator Safely / Respect Electricity Service/Store Generator Safely / Have an Extinguisher Nearby / Personal Precautions when Charging Batteries / Risk of Explosive Gases / Charging Batteries	
4. Fuel and Lubricants	9
Engine Oil	
Servicing set up of New Unit or changing engine oil	
Fuel	
5. Wattage Calculating Instructions	11
Maximum output operation	
Extension cord — usage	
Miscellaneous wattage requirement	
6. Prestarting Information	15
Grounding generator / Power indicator light / AC receptacles and circuit breakers / Frequency / Operating Generator / AC output / Connecting 120 V receptacles / DC receptacle and circuit breaker / Operating generator/DC output	
7. Charging Batteries	18
Prevent battery explosions / Avoid acid burns / Prepare the battery / Check battery specific gravity / Connecting generator to battery or equipment / Stopping and disconnect generator from battery or equipment / Charging time	
8. Operating the Engine	21
Starting the engine / Breaking in a New Engine / Engine break in requirements / Low oil level shutdown system / Stopping the engine	
9. General Maintenance	23
Service/before each use / Checking engine oil level / Air Filter / Spark plug / Fuel tank strainer / Fuel bowl/Strainer	
10. Storage	27
Storing for short time between jobs (90 days or less) / Storing for long time between jobs / Removing generator from storage	
11. Preventive Maintenance Check Chart	28
12. Troubleshooting	28
Limited Warranty	

IMPORTANT

PLEASE READ BEFORE USING YOUR ECHO GENERATOR

The popularity of generators being used as secondary or emergency power sources in commercial, industrial or residential structures has lead many states to enact strict codes. Such as, if a generator is hooked to a supply system it is to be connected by an isolation switch (double throw switch).

Potential hazard exists when a portable electric generator is connected to the main electrical supply system without the installation of a double throw switch at the power supply point. It is at this point that the electrical generator could feed back into the distribution system of the utility company causing possible electrocution of workers who are repairing the electricity line.

Laws in many states require that:

- Any owner, renter or lessee who connects an electrical generator to the electrical system of an industrial, commercial or residential structure is to notify the public utility or utility district. Violation of any of the above provisions will be punishable by fine or imprisonment.

The following danger decal can be found on the fuel tank portion of the generator. You must contact a licensed electrician before permanently or temporarily hooking your ECHO generator to your utility electrical supply system as either an emergency or temporary sources of power.



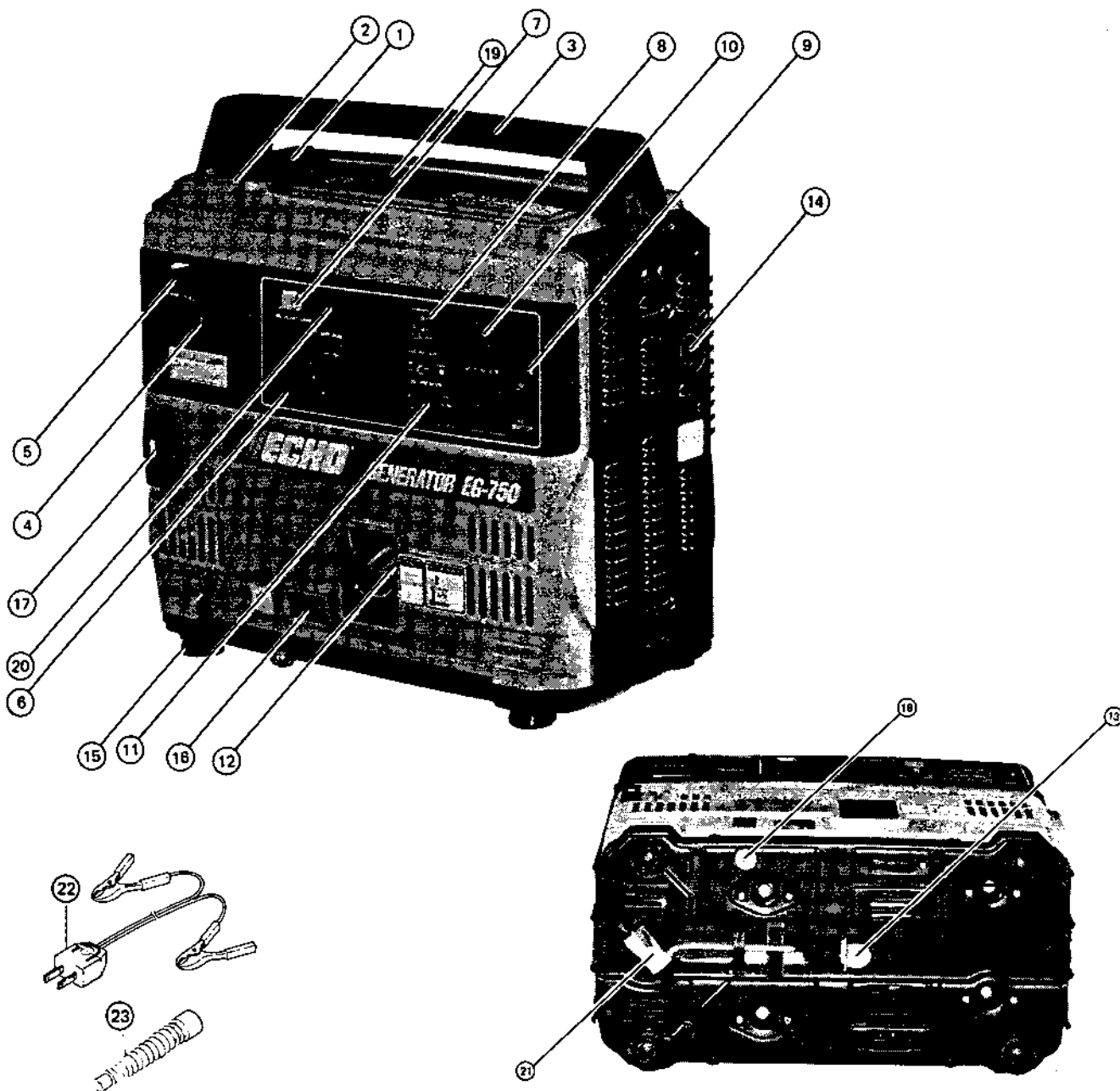
DANGER

**ELECTROCUTION OR PROPERTY DAMAGE CAN OCCUR:
DO NOT CONNECT THIS GENERATOR TO ANY BUILDING'S
ELECTRICAL SYSTEM UNLESS AN ISOLATION SWITCH
HAS BEEN INSTALLED BY A LICENSED ELECTRICIAN.
REFER TO THE OPERATOR'S MANUAL.**

SPECIFICATIONS

DESCRIPTION	EG 550	EG 750
Engine Type	4-cycle, air-cooled GY15DGY	4-cycle, air-cooled GY20DGY
Displacement cc/cu in	58/3.5	78/4.7
Frequency Hz	60	60
Rated Output Watts AC Continuous Duty	500	680
Output Max. Watts AC	550	750
Engine Speed RPM	3600	3600
Voltages V	120	120
Output DC	12 Volts 100 Watts	12 Volts 100 Watts
Starting System	Recoil	Recoil
Fuel Tank Capacity:		
Liters	2.0	3.5
U.S. gal.	0.53	0.92
Hours Per Tank h	5.0	5.5
Ignition	Transistorized	Transistorized
DC Battery Charging Cable	Yes	Yes
Automatic Voltage Regulator	Yes	Yes
AC Circuit Breaker	Yes	Yes
DC Circuit Breaker	Yes	Yes
Carburetor	Float	Float
AC Plug Socket	2	2
DC Plug Socket	1	1
Spark Plug	BPM4A CJ-8 Champion or equivalent	BPM4A CJ-8 Champion or equivalent
Oil Crankcase Capacity		
Liters	0.22	0.29
Ounces	7.5	10.0
Oil Funnel	1	1
Spark Plug wrench with Driver	1	1
Dimension (LxWxH) mm (in.)	410 x 212 x 375 (16.1 x 8.3 x 14.8)	410 x 212 x 405 (16.1 x 8.3 x 15.9)
Weight kg (lbs)	19.0 41.9	22.0 48.5

1-1 ECHO's LIGHT POWER EG550/EG750 GENERATORS



- 1 Fuel Tank Cap
- 2 Fuel Tank
- 3 Carrying Handle
- 4 Air Filter
- 5 Choke lever
- 6 Ignition Switch/Throttle Lever
- 7 Oil Alert System
- 8 Hertz/Cycle Meter

- 9 Circuit Breaker
- 10 AC Receptacle
- 11 12 Volt receptacle (DC)
- 12 Oil Filter Cap
- 13 Oil Drain Plug
- 14 Muffler
- 15 Rubber Engine Mounts
- 16 Fuel Bowl/Strainer

- 17 Starter Handle
- 18 Grounding Lug
- 19 Fuel Gauge
- 20 Power Indicator Light
- 21 Spark Plug Wrench
- 22 Battery Charging Supply Cord
- 23 Oil Funnel

Learn Generator Safety

Improper use or maintenance by the operator can result in injury. Follow these safety suggestions.

Carefully read this manual. Learn how to operate your generator correctly. Also pay attention to point of use safety messages in this manual.

CAUTION:

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

DO NOT let anyone operate the generator without proper instruction.

PROTECT PEOPLE AND PETS

KEEP PEOPLE AND PETS OUT OF THE AREA where you are using the generator.

DO NOT let children operate the generator, or handle electrical power cords.

OPERATION OF A GENERATOR should be restricted to mature, properly instructed individuals.

HANDLE FUEL SAFELY-AVOID FIRES

DO NOT USE ANY OTHER FUEL than that recommended in your Owner's Manual. Handle gasoline with care: it is highly flammable. Use an approved gasoline container.

FILL THE FUEL TANK OUTDOORS.

DO NOT OVER FILL FUEL TANK. Fill fuel tank only to middle rib indicator in fuel filter insert.

DO NOT SMOKE while you fill fuel tank or service fuel system.

DO NOT REMOVE GAS CAP OR ADD GASOLINE to tank if engine is hot or running.

CLEAN UP spilled gasoline.

MOVE AWAY from refueling area before attempting to start generator engine.

KEEP ENGINE CLEAN. Remove grass, leaves excess oil and dirt before you start engine.

LET ENGINE COOL before you store generator in a building.

DO NOT store generator where fuel fumes could reach an open flame or spark.

WHEN TRANSPORTING YOUR GENERATOR, make sure it is in the upright position and that gasoline is not leaking. Secure it from sliding.

REFUEL IN A SAFE PLACE. Move the generator at least 10 feet from its operating location. Open the fuel cap slowly to release any pressure which may have formed in the fuel tank. Return the generator to its original location before re-starting the engine.

OPERATE ENGINE SAFELY

DO NOT RUN ENGINE in an enclosed or poorly ventilated areas (inside a room, garage barn, etc). Exhaust gas contains carbon monoxide, an odorless and deadly poison.

ENGINE IS EQUIPPED WITH A SPARK ARRESTING MUFFLER as regular equipment to meet regulations in states requiring one when operating internal combustion engine-equipped machinery on device.

DO NOT TOUCH A HOT ENGINE OR MUFFLER.

OBEY ALL FIRE SAFETY REGULATIONS

Fire prevention regulations of the U.S. Forestry jurisdiction require approved spark arrester screen to be installed on gasoline powered products used on U.S. Forestry forests, brush and grasslands. Your unit is equipped with such a spark arrester screen installed on the muffler. Keep this screen properly maintained at all times. An improperly maintained screen can cause engine power loss and improper functioning of the exhaust system.

NOTE:

Compliance with local, state and federal laws is the users responsibility. Replacement spark arrester screen kits are available for your generator from your **ECHO** dealer. If you have any questions concerning spark arrester screens or their use, please contact your **ECHO** servicing dealer.

OPERATE GENERATOR SAFELY

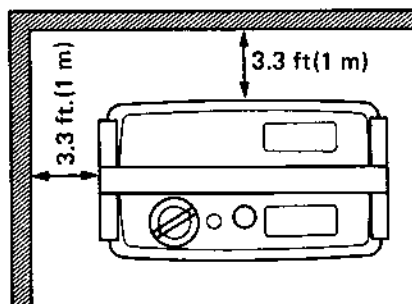
DO NOT ATTEMPT TO CARRY GENERATOR when engine is running.

DO NOT OPERATE GENERATOR 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.

AVOID accidental fires and engine overheating.

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 burnable objects.

**WARNING:**

DO NOT operate generator in area of flammable materials.

DO NOT ENCLOSE UNIT, as it relies on free air circulation to cool the engine and generator. 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.

These generators are not intended for installation in RV's (recreational vehicles), boats or similar locations.

RESPECT ELECTRICITY

DO NOT TOUCH ELECTRICAL EQUIPMENT while standing on metal floors, damp concrete, or other well-grounded surfaces.

DO NOT HANDLE ELECTRICAL EQUIPMENT while wearing damp, clothing (particularly wet shoes) or while skin surfaces are damp.

BE EXTRA CAUTIONS WHEN WORKING with generator during wet weather EG550 & EG750 Generators are not waterproof. Using a generator in a wet place or during stormy weather could result in short circuits, electric shock or electrocution.

DO NOT examine equipment when mentally or physically stressed.

DO NOT WORK on ungrounded electrical equipment.

DO NOT CONNECT GENERATOR DIRECTLY to household electrical circuits.

DO NOT USE ungrounded extension cords.

NEVER ALTER CORD, or plug of any appliance to be used with generator.

WARNING:

These units produce 120V which may cause fatal electrical shock if above precautions are not followed.

USE ONLY POWER CORDS that are suitable for use outdoors and are so marked. Always examine power cords for signs of fraying, damage or cracks in the insulation before using them.

DO NOT HANDLE POWER CORDS that have damaged insulation or are wet.

DO NOT PLUG IN EXTENSION CORDS OR HOOK UP appliances until generator has been properly started, has reached full engine speed and is generating electricity.

DO NOT under any circumstances connect your generator to any circuit or receptacle receiving electrical power (home, office etc.) from any other sources as this is likely to result in a fire and damage to all electrical systems.

DO NOT, under any circumstances, use the generator for purpose that exceeds its rated capacity.

GROUND THE GENERATOR. The manufacturer has provided a grounding lug for the proper grounding of the generator. Manufacturer does not supply the required grounding conductor or grounding electrode because it would be impossible to cover every exception and meet all local code requirements. See your local code requirements for the proper grounding governing the use of your generator.

IF CONSIDERING CONNECTING GENERATOR to existing wiring systems (house, barn, pumps, for example), **CONTACT A LICENSED ELECTRICIAN** to ensure proper, safe connection and compliance with local electrical, fire safety and building codes.

INSPECT GENERATOR CAREFULLY

INSPECT THE GENERATOR CAREFULLY before you operate it.

GUARDS AND SHIELDS must be in place.

KEEP NUTS, BOLTS, AND SCREWS TIGHT. Loose parts may result in personal injury or damage to the unit.

DO NOT operate the generator without an air filter.

DO NOT operate the generator if the oil level is low.

DO NOT ALTER ENGINE SETTINGS. The engine speed is controlled by a pre-set governor to deliver rated electrical power. Consult your **ECHO** servicing dealer if in doubt.

VENTILATING OPENINGS such as the generator 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 generator.

SERVICE GENERATOR SAFELY

KEEP generator clean.

BEFORE you service or remove parts, let the engine cool.

DO NOT work on generator while it is being operated.

DO NOT adjust generator when engine is running, unless the procedure is approved. **STOP THE ENGINE.**

WAIT until generator is stopped before you service it.

USE ONLY identical replacement parts when servicing unit.

DO NOT ALTER EXHAUST SYSTEM Use only **ECHO** approved exhaust mufflers.

STORE GENERATOR SAFELY

Before you leave the generator unattended:

1. Stop engine by moving the Ignition Switch/Throttle Lever to the **STOP** position.
2. Turn fuel valve to **OFF** position.
3. Disconnect spark plug wire.
4. Do not store generator where fuel fumes could reach an open flame or spark.

WHEN NOT IN USE, STORE GENERATOR in a cool, dry place and **AWAY FROM POSSIBLE SOURCES** of ignition such as gas water heaters, furnaces, clothes dryers etc.

WHEN TRANSPORTING your generator, make sure it is in an upright position and that gasoline is not leaking. Secure it from sliding.

HAVE AN EXTINGUISHER NEARBY

Have a multipurpose dry chemical fire extinguisher filled and handy. Know how to use it.

COMPLY WITH ALL FIRE PREVENTION REGULATIONS. We recommend you keep a fire extinguisher and long-handle shovel close by whenever using a generator in areas where dry grass, leaves or other flammable materials are present.

Safety Precautions

PERSONAL PRECAUTIONS WHEN CHARGING BATTERIES

Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.

Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.

Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.

If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

NEVER smoke or allow a spark or flame in vicinity of battery or engine.

RISK OF EXPLOSIVE GASES

Working in the vicinity of a lead-acid battery is dangerous. Batteries generate explosive gases during normal battery operation. For this reason, it is of utmost importance that each time before using your generator to charge a battery, you read and follow the instruction exactly in this manual, those published by battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of battery. Review cautionary marking on these products and engine.

Be extra cautious to reduce risk of dropping metal tool onto battery, it might spark or short-circuit battery or other electrical part that may cause explosion.

Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring or the like to metal, causing a severe burn.

WARNING:

Use generator for charging a LEAD-ACID battery only. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

NEVER charge a frozen battery.

USING GENERATOR AS BOOSTER

WARNING:

Do not use generator to boost or jump start a vehicle as serious damage can result to generator and vehicle electrical system.

PREPARING TO CHARGE

If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.

Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other nonmetallic material as a fan.

Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.

Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.

Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.

CHARGING BATTERY INSTALLED IN VEHICLE

Position battery charging supply cord to reduce risk of damage by hood, door, or moving engine parts.

Stay clear of fan blades, belts, pulleys and other parts that can cause injury to persons.

Never charge marine (boat) batteries on board. Charging marine batteries requires special equipment.

Never attach battery charging supply cord to grounded battery terminal, always connect to frame or engine block.

Never attach grounding battery charging supply cord to carburetor, fuel lines or sheet metal body parts.

Unplug battery charging supply cord from generator before removing clamps from battery.

CHARGING BATTERY REMOVED FROM VEHICLE

Attach at least a 24-in. long (610mm) long 6-gauge (AWG) insulated cable to **NEGATIVE** battery post.

Position yourself and free end of cable as far away from battery as possible, then connect **NEGATIVE (BLACK)** clamp of battery charging supply cord to free end of cable.

Remove battery charging supply cord from generator before removing clamps from battery.

Fuels and Lubricants

Engine Oil

IMPORTANT:

Before starting engine for first time, add oil as unit is shipped dry.

Depending on the expected air temperature range during the drain interval, use oil viscosity shown on the adjoining temperature chart.

IMPORTANT:

Use premium quality engine oils meeting minimum performance requirements of API Service Classification SE or SF.

Quality engine oils are blended, so additives are neither required nor recommended.

LUBRICATION CHART			
SEASON	TEMPERATURES	OIL	
		SAE	API
Summer	Above 30°C Above 86°F	SAE 30	SE
	20° to 29°C 68° to 85°F	SAE 30	SF
Spring	10° to 19°C 44° to 67°F	SAE 20 or 10W-30	
Winter	Below 10°C Below 44°F	SAE 10 or 10W-30	

NOTE:

Engine oil should be changed after the first 20 hours of operation considered the breaking in period for your unit. Engine oil should be changed after every 50 hours of operation following the break in period. Always change the crankcase oil when the engine is warm for complete drainage.

Check the crankcase oil level frequently. Make sure the oil crankcase is full before starting the generator. Always check the crankcase oil level each time the fuel tank is refilled.

The oil crankcase capacity for the EG550 generator when full is 0.22 liters and EG750 is 0.29 liters.

EG550 US fld. oz. = 7.5 oz. (0.22 liters)

EG750 US fld. oz. = 10.0 oz. (0.29 liters)

CAUTION:

Operating a generator with a low oil level will cause serious engine damage.

SERVICING SET UP OF NEW UNIT OR CHANGING ENGINE OIL

IMPORTANT:

Before starting engine for first time, add oil as unit is shipped dry.

NOTE:

Change engine oil after first 20 hours of operation and every 50 hours thereafter.

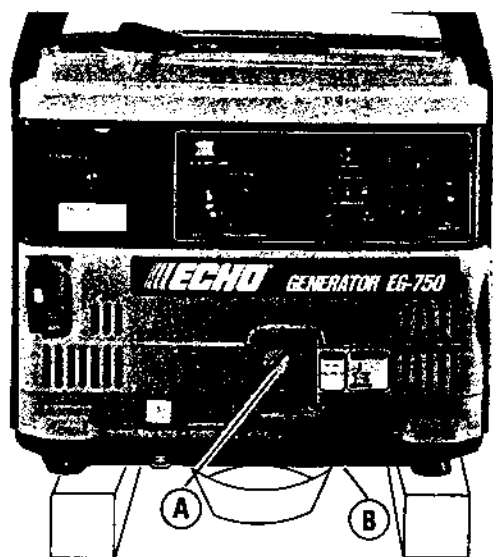
1. Set generator on level surface.
2. Run engine a few minutes to warm oil.
3. Stop engine.
4. Remove oil dipstick(A) and oil drain plug(B). Drain oil into container. Don't pollute, dispose of waste oil properly. (SEE PHOTO IN NEXT PAGE)
5. Install oil drain plug and tighten.
6. Add oil. (See Lubricants section for correct oil.)

ENGINE OIL CAPACITY

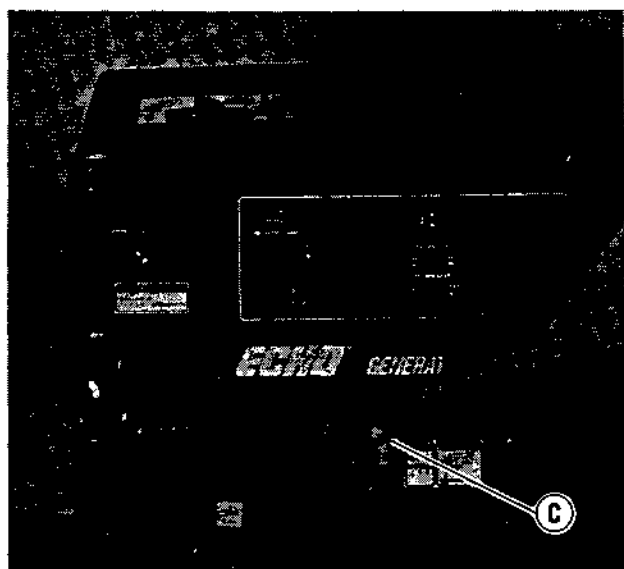
EG550 . . US fld. oz. 7.5 oz. (0.22 liters)

EG750 . . US fld. oz. 10.0 oz. (0.29 liters)

7. Install dip stick and thread into place.
8. Remove dipstick to check oil level.
9. Add oil if necessary.
10. Install and tighten dipstick.



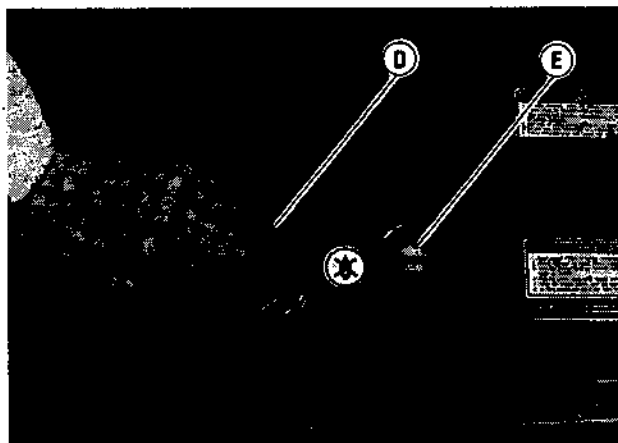
- A. Mount unit on cement or wooden blocks about 6 inches high.
- B. Remove oil drain plug(B) on bottom of unit. Place drain pan under unit.
- C. Remove oil dipstick(A) to break vacuum air seal.
- D. Reinstall oil drain plug B.
- E. Add engine oil.



Location of dipstick and oil filler hole (C)

Fuel

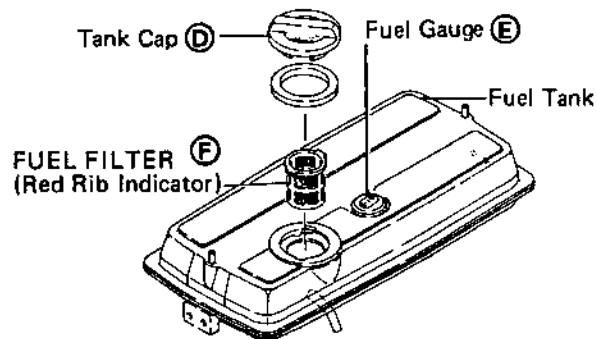
Handle fuel carefully. If the engine is hot or running, do not fill the fuel tank. Do not smoke while you fill the fuel tank or service the fuel system. Fill fuel tank only to middle rib of fuel filter insert.



IMPORTANT:

DO NOT use gasoline-alcohol mixtures, such as gasohol or ethynol-blend gasoline. **DO NOT** mix oil with gasoline.

1. Use unleaded or regular automotive gasoline. Do not use gasoline that has been stored for a long period of time. (30 days maximum) Use gasoline with 87 to 92 octane rating.
2. Remove fuel cap(D) and fill only to middle rib indicator(F) in fuel filter insert.



3. Fuel gauge(E) indicates approximat fuel level in tank. Refill when needed.

CAUTION:

Fuel additives or special starting fluids should not be used because seals and other rubber composition parts may be damaged.

CALCULATING WATTAGE REQUIREMENTS (AC)

IMPORTANT:

These generators do not provide enough output for stand-by power installations.

Two types of electrical appliances may be powered by your generator:

- Resistive load devices such as light, heaters, TV sets, radios, hand held power tools, etc., and
- Inductive load devices, such as induction start motors.

The starting wattage required by resistive loads is the same as the running wattage needed to run the appliance. The starting wattage for inductive load appliance is higher than the appliances running wattage requirements. Maximum inductive starting load capacity, therefore, is smaller than the maximum resistive load capacity.

WARNING:

The starting wattage for inductive load appliances may be 3 to 3.5 times greater than the appliances running wattage requirements.

WATTS REQUIRED TO START MOTOR				
Motor Size (HP)	Running Watts	Repulsion Induction	Capacitor	Split Phase
1/6	275	600	850	2050
1/4	400	850	1050	2400
1/3	450	975	1350	2700
1/2	600	1300	1800	3600
3/4	850	1900	2600	—
1	1100	2500	3300	—

IMPORTANT:

Do not exceed rated capacity of your generator. Serious damage to the generator or appliance can result.

Before operating the generator, perform the following exercise to determine what items or combinations of item the generator can power.

- List all light bulbs, appliances, and tools which will be operated.
- Fill in any running wattage of items listed and total the values.

NOTE:

Wattage can usually be found on light bulbs or appliance name plate. If not, determine wattage by multiplying listed amperage by voltage.

Volts x Amps = Watts.

Use actual wattage values, if available.

If not, use the values in the following charts as a guide.

There are example of appliances in the charts that are over the rated generator capacities. These are being shown for reference data only. The running and inductive starting wattages shown in these charts are approximations.

GENERATOR APPLICATION WORKSHEET			
Requirements	Running Wattage	Inductive Starting Wattage	Total Wattage
Lights	60	0	
Radio	80	0	
TV	255	0	
Total	395	0	395

NOTE:

Operating generators with simultaneous AC and DC loading is not recommended.

- If inductive starting wattage is less than generator capacity, running and inductive starting wattages do not have to be totaled.

IMPORTANT:

Total running wattage must be less than generator capacity. Total inductive starting wattage must be less than generator capacity.

GENERATOR APPLICATION WORKSHEET			
Requirements	Running Wattage	Inductive Starting Wattage	Total Wattage
Furnace "1/8"HP	300	500	
Total	300	500	

4. Using figures calculated, use chart to compare requirements to generator capacity.

If generator capacities are not adequate to cover all requirements, deduct the least needed appliance so generator can be used without overloading.

If requirements are mandatory and cannot be reduced, obtain a larger capacity generator.

GENERATOR CAPACITY CHART			
Model	Continuous Running Wattage Capacity	Maximum Running Wattage Capacity	Maximum Inductive Starting Wattage Capacity
550	500 watts	550 watts	150
750	680 watts	750 watts	250

MAXIMUM OUTPUT OPERATION

Limit operation of the generator at maximum output to 30 minutes. Additional 3 minutes periods of maximum output are possible if the generator is allowed a 10 minutes to cool between periods of maximum output. Cool engine by operating in the throttle position with the output load disconnected.

* Will Operate

General Application Guide for EG550 and EG750

ITEMS	WATTS	EG550	EG750
RADIO	50	*	*
12 Volt DC BATTERY	100	*	*
LIGHT BULB	100	*	*
BLANKET	150	*	*
SLOW COOKER	200	*	*
WINDOW FAN	250	*	*
DRILL (1/4")	250	*	*
DRILL (3/8")	500	*	*
TELEVISION (COLOR)	300	*	*
SUMP PUMP	400	*	*
DEEP FREEZER	500	*	*
BELT SANDER	600		*
REFRIGERATOR	600		*

Watts : Running Watts

EXTENSION CORD USAGE

When using a tool at a considerable distance from power source, a 3-conductor, grounding-type extension cord of adequate size must be used for safety, and to prevent loss of power and overheating. Use the table below to determine the minimum wire size required.

NOTE:

Use only three wire extension cords which a three-prong grounding type plugs and three-pole receptacles which accept the tool's plug. Replace or repair damaged cords immediately.

CAUTION:

A cord that is hot to the touch is overloaded.

Wire Gauge Chart

EXTENSION CABLE LENGTH	EG550 120V	EG750 120V
25 Ft. (7.62M)	12	12
50 Ft. (15.24M)	12	12
75 Ft. (22.86M)	12	12
100 Ft. (30.48M)	10	10
150 Ft. (45.27M)	8	8
200 Ft. (60.94M)	8	8

American Wire Gauge Size

Miscellaneous wattage requirement

REQUIREMENTS	TOTAL Inductive Starting Watts
Air Condition, Central 20,000 BTU 24,000 BTU	5,800 8,750
Blanket, Electric	400
Charger, Battery 4 amp 10 amp 15 amp 30 amp w/200 amp boost 60 amp w/250 amp boost	90 200 380 650/3,600 1,500/5,750
Cleaner, Grain 1/4 HP	1,650
Coffee Maker	1,750
Compressor, Air 1/2 HP 1 HP	3,000 6,000
Conveyor, Portable 1/2 HP	3,400
Cooler, Milk	2,900
Cultivator, Electric	2,100
Dehumidifier	1,450
De-Icer, Stock Tank	1,000
Dish Washer Cool dry Hot dry	2,100 1,000
Drill, Hand 1/4 inch 3/8 inch 1/2 inch	350 400 800
Dryer, Clothes Gas Electric	2,500 7,550
Dryer, Hair	300 – 1,200
Elevator, Grain 3/4 HP	4,400
Fence, Electric (25 mile) Freezer Frypan, Electric	250 2,900 1,300
Furnace Fan (Gas or Fuel Oil) 1/8 HP 1/6 HP 1/4 HP 1/3 HP 1/2 HP	800 1,250 1,600 2,100 3,225

REQUIREMENTS	TOTAL Inductive Starting Watts
Grinder, Bench 6 inch 8 inch	1,720 3,900
Heater, Portable Space (Kerosene, Diesel Fuel) 30,000 BTU 50,000 BTU 85,000 BTU 90,000 BTU 140,000 BTU 150,000 BTU 350,000 BTU	800 1,000 1,225 1,225 1,625 1,625 2,125
Iron	1,200
Light Bulbs	Indicated on Bulb
Lights, Flood HID Metal Halide Mercury Vapor (Not recommended) Sodium Vapor	125 313 — 1,250
Mixer (Vacuum Pump) 2 HP	10,500
Milker 3-1/2 cu. ft 1/2 HP	3,300
Mixer, 55 gal. drum 1/4 HP	1,900
Motors, Farm Duty Standard (e.g. conveyor, feed auger, air compressor) 1/3 HP 1/2 HP 3/4 HP	1,720 2,575 4,500
High Torque (e.g. barn leaners silo unloaders, silo hoists, bunk feeders) 1-1/2 HP	8,100
Motors, Industrial Duty Split Phase 1/8 HP 1/6 HP 1/4 HP 1/3 HP	800 1,225 1,600 2,100
Capacitor Start Induction Run 1/3 HP 1/2 HP 3/4 HP	2,020 3,075 4,500
Capacitor Start Capacitor Run 1-1/2 HP	8,100

Miscellaneous wattage requirement

REQUIREMENTS	TOTAL Inductive Starting Watts
Fan Duty	
1/8 HP	1,000
1/6 HP	1,400
1/4 HP	1,850
1/3 HP	2,400
1/2 HP	3,500
Opener, Garage Door	
1/4 HP	1,850
1/3 HP	9,225
Oven, Microwave (625 watt)	2,800
Polisher, Floor	
16 inch – 3/4 HP	4,500
20 inch – 1 HP	6,100
Pumps	
Centrifugal, 900 GPH	900
Submersible, 400 GPH	600
Sump	
1/3 HP	2,100
1/2 HP	3,200
Wet	
1/3 HP	2,150
1/2 HP	3,100
Radio	50 – 200
Refrigerator	2,900
Saws	
Bank, 14 inch	2,500
Circular, 6 – 1/2 inch	500
7 – 1/4 inch	900
8 – 1/4 inch	1,400
Electric chain	
1/2 inch, 1-1/2 HP	900
14 inch, 2 HP	1,100

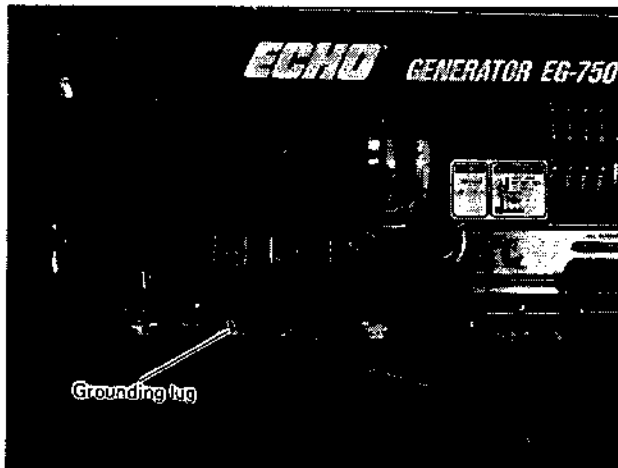
REQUIREMENTS	TOTAL Inductive Starting Watts
Table	
9 inch	4,500
10 inch	6,300
Television	
Color	300
Black and White	100
Toaster	
2 Slice	1,050
4 Slice	1,650
Trimmer, Hedge 18 inch	400
Trimmer, Nylon Line	
Standard 9 inch	350
Heavy Duty 12 inch	500
Vacuum Cleaner	
Standard	800
Deluxe	1,100
Vacuum, Wet & Dry	
1.7 HP	900
2.5 HP	1,300
Washer, Clothes	3,450
Washer, High-Pressure	
5/8 HP	4,600
1 HP	9,050
1-1/2 HP	10,310
Welder	
70 amp	2,000
100 amp	3,600
200 amp	9,000

IMPORTANT:

There are examples of appliances in this chart that are more than rated generator capacities. They are shown for reference data only. The running and additional inductive starting wattage shown in this chart are approximations. Actual wattage can usually be found on light bulbs or appliance name plate. If not, determine wattage by multiplying listed amperage by voltage.

GROUNDING GENERATOR

The National Electrical Code (NEC) requires that all separately derived AC systems be grounded per Article 250-26. Manufacturer has added a grounding lug type terminal per Article 250-26 (a) from the non-current-carrying metal parts to the conductor to be grounded. Manufacturer does not supply the required grounding conductor or grounding electrode because it would be impossible to cover every exception and all local code requirements. See your local codes and the NEC manual for the proper grounding for your application.



Location of grounding lug type terminal

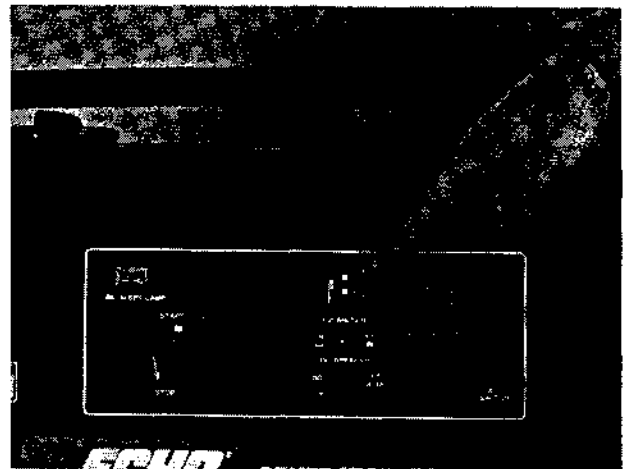
NOTE:

- * As a general rule, do not use electrical equipment in wet or damp areas. Additional rules from NEC, OSHA and state codes apply to portable generators when used on construction sites.
- * It is the responsibility of the consumer to meet the above requirements.

POWER INDICATOR PILOT LIGHT

When generator is operating properly power indicator light(A) will be lit bright green at full power during both AC or DC operation. The frequency meters 60 Hz bar will vibrate indicating proper generator function.

Do not operate the unit if the pilot lamp on the instrument panel is not on or if the generator is vibrating abnormally. Consult your ECHO servicing dealer immediately.



Location of Frequency Hz meter

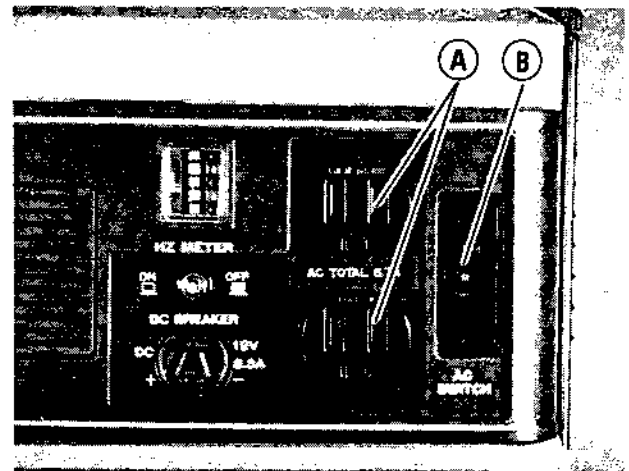
AC RECEPTACLES AND CIRCUIT BREAKERS

IMPORTANT:

Do not exceed rated capacity of your generator, as serious damage to the generator or appliance could result.

Do not start engine under load, i.e., when appliance is connected.

The generator is equipped with one internally grounded 120-volt AC duplex receptacle (A).



AC Receptable and Circuit Breaker (AC Switch).

The receptacle circuit is protected by a circuit breaker (B) as listed below:

Model EG550	5 amp
Model EG750	7.5 amp

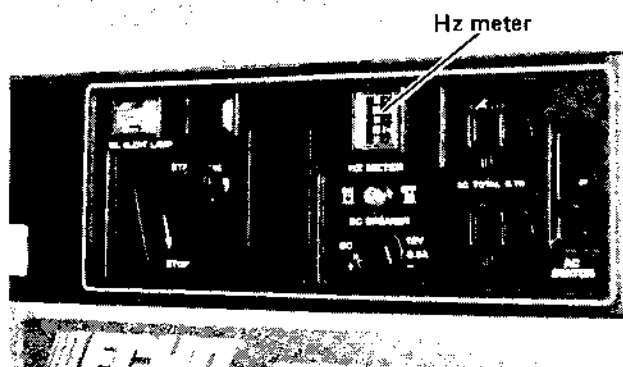
NOTE:

Circuit breakers trip automatically under circuit overload. When a circuit breaker trips, determine the cause. Typical causes are excessive loading and electrical system shorting.

If a circuit breaker trips, locate and correct the problem, flip the circuit breaker AC switch to reset and resume operation.

FREQUENCY (Hz Meter)

Your generator has been factory preset to 60 cycles (one Hertz [Hz]) equals one cycle/per second, the same as 120 volt household current, at 3600rpm with throttle in FULL position.



Frequency meter at 60 Hz

The 60 cycle output is the standard electrical frequency for the United States.

IMPORTANT:

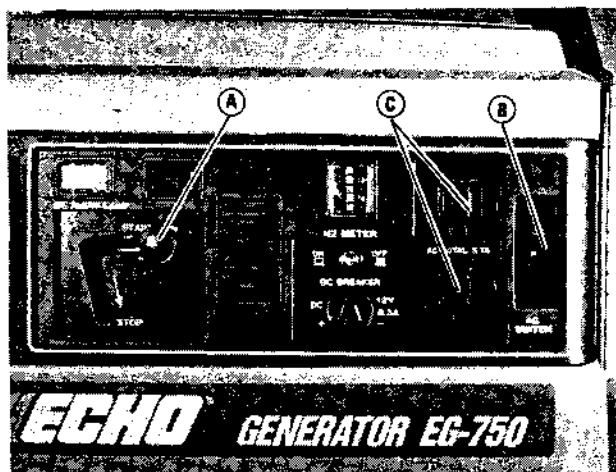
Certain appliances should only be operated at specified frequencies, such as a clock, record player or tape recorder. Check with the operating instructions or data plate of the appliance.

NOTE:

Adjustment or changing of frequency should be made by an authorized ECHO servicing dealer.

OPERATING GENERATOR/AC OUTPUT

1. Start engine. (See Starting the Engine)
2. Set engine speed at maximum rpm, place throttle switch (A) in FULL start run position.



A.C. Receptacles with AC circuit switch

IMPORTANT:

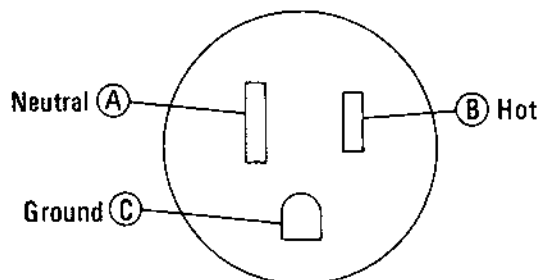
Check that equipment switches are "OFF"

3. Connect equipment to generator receptacle (C).
4. Turn "ON" AC circuit breaker switch (B).

CONNECTING 120V RECEPTACLES
IMPORTANT:

Note receptacle wiring polarity to prevent equipment or generator failure.

Plug connections to all equipment should be as follows:

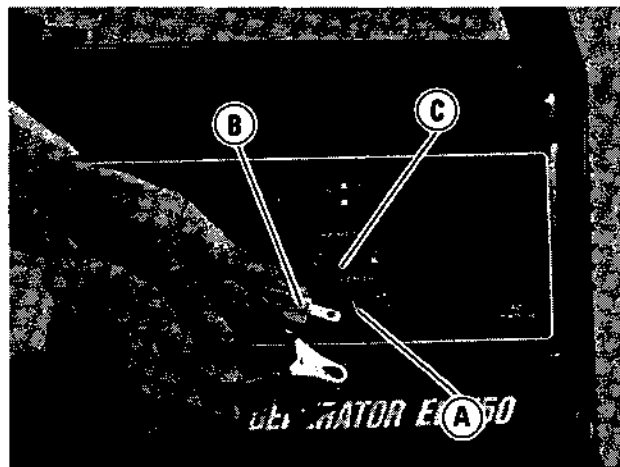

IMPORTANT:

Before stopping the engine, make sure the AC circuit breaker switch is in the off position.

Prestarting Information

DC RECEPTACLE AND CIRCUIT BREAKER

Before attempting to use generator, check wattage requirement on nameplate of appliance to be operated. (See Calculating Wattage Requirements in 5 section.)



DC Receptacle and Circuit Breaker with charging leads connected.

IMPORTANT:

Do not exceed rated capacity of your generator, as serious damage to the generator could result. (12 VDC, 8.3A)

Disconnect appliances before starting engine.

The generator is equipped with one 12-volt DC receptacle (A) and a battery charging supply cord (B).

NOTE:

Using the generator DC output to charge an extremely discharged 12-volt battery may overload the circuit and trip the DC circuit breaker.

The DC receptacle circuit is protected by a 12-amp circuit breaker (C).

NOTE:

Circuit breakers trip automatically under circuit overload. When a circuit breaker trips, determine the cause. Typical causes are excessive loading and system shorting.

If a circuit breaker trips, locate and correct the problem, and allow circuit breaker to cool for 1 minute. Then reset circuit breaker by pushing the circuit breaker button in to reset and resume operation.

OPERATING GENERATOR/DC OUTPUT

IMPORTANT:

Do not connect charging supply cables to battery while engine is running.

To help prevent overheating of charging wire or cable when charging batteries, use 14 gauge (AWG) wire or larger.

NOTE:

Larger wire will have (smaller AWG number.)

1. Connect charging leads to battery or equipment. (See Connecting Generator to Battery or Equipment).
2. Start generator engine. (see Starting Engine/Operating Engine Section.)
3. Place throttle switch in **FULL** start run position.
4. Plug in battery charging supply cable to 12-VDC receptacles.

USING GENERATOR AS BOOSTER**❏ IMPORTANT:**

Do not use generator to boost or jump start a vehicle as serious damage can result to generator and vehicle electrical system.

PREVENT BATTERY EXPLOSIONS

Battery gas can explode. Charge batteries in a well ventilated area. Keep sparks and flames away from batteries. Do not short across battery terminals. Do not lay tools on top of battery.

Always remove grounded (–) battery clamp first and replace it last.

AVOID ACID BURNS

Sulfuric acid battery electrolyte is poisonous. Even though it is diluted, it is strong enough to cause sight loss, burn skin, or damage clothing.

Fill new batteries in a well ventilated area, wear eye protection and rubber gloves, and avoid breathing any fumes from the battery when the electrolyte is added. Avoid spilling or dripping electrolyte when using a hydrometer to check specific gravity readings.

If acid gets in your eyes, flush them right away with large amounts of water, and see a doctor at once. If you spill acid on yourself, flush your skin immediately with lots of water. Apply baking soda or lime to help neutralize the acid.

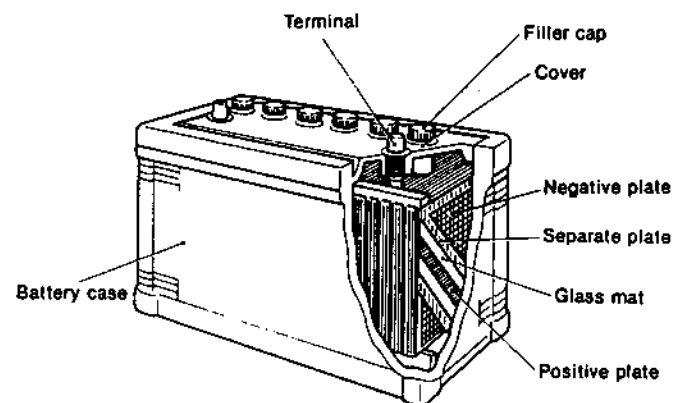
PREPARE THE BATTERY

1. Before charging, make certain battery has enough electrolyte in each cell to cover top of plates.
2. If battery is equipped with vented caps, make certain they are properly installed.

❏ CAUTION:

Be careful to keep corrosion from coming in contact with eyes. Never smoke in vicinity of battery.

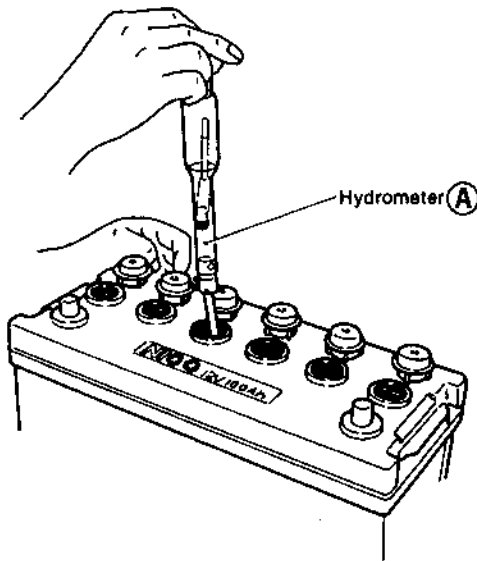
3. Clean battery terminals.



CHECK BATTERY SPECIFIC GRAVITY

Use a hydrometer (A) to determine state of charge. Refer to chart to obtain percent of charge.

Hydrometer reading	Battery test reading
Specific gravity	Percent of charge
1.260	100%
1.220	75%
1.180	50%
1.140	25%
1.100	0%



NOTE:

Any battery 25% charged or lower may readily freeze and should be charged at once.

IMPORTANT:

If battery has just been charged, a surface charge may exist creating a false or higher than normal reading.

To eliminate surface charge, the battery must be discharged for 3 to 5 minutes by creating a load such as turning lights on.

CONNECTING GENERATOR TO BATTERY OR EQUIPMENT

CAUTION:

Never charge marine batteries on board. Do not physically touch battery charging leads, battery terminals, or equipment simultaneously. Injury can result from electrical shock. Do not allow charging leads to contact each other or vehicle. Sparks could ignite gases and cause an explosion. Do not connect **NEGATIVE** charging lead to carburetor or fuel lines.

1. Connect **POSITIVE** generator charging lead to the **POSITIVE(+)** battery terminal or the **POSITIVE (+)** equipment terminal.

IMPORTANT:

Make certain to check vehicle to determine if electrical system is positive or negative grounded. Connect clamps accordingly.

- 2a. If battery is not installed in the vehicle attach at least a 610 mm (24 in.) long G-gauge (AWG) insulated battery cable to **NEGATIVE (-)** battery terminal. Connect **NEGATIVE** generator charging lead to end of insulated battery cable attached above.
- 2b. If battery is installed in the vehicle, attach **NEGATIVE** generator charging lead to clean, well grounded area on the chassis away from battery.

IMPORTANT:

If sparking occurs between battery charging supply cord clamps and battery posts or the battery charging supply cord plug, disconnect battery charging supply cord from generator immediately; clamps or battery charging supply cord is being connected to wrong battery posts or terminals. Check battery and wiring to correctly identify **POSITIVE** and **NEGATIVE** battery post.

3. Start generator engine. Set throttle knob to **FULL** start run position and allow engine to warm up.
4. Plug in battery charging supply cord into 12 volt DC receptacle.

STOPPING AND DISCONNECT GENERATOR FROM BATTERY OR EQUIPMENT

CAUTION:

Do not remove charging leads from battery terminals while generator is operating. Sparks could ignite gases and cause an explosion.

1. Stop engine
2. Disconnect generator charging leads from battery.
3. Disconnect charging leads from generator.

CHARGING TIME

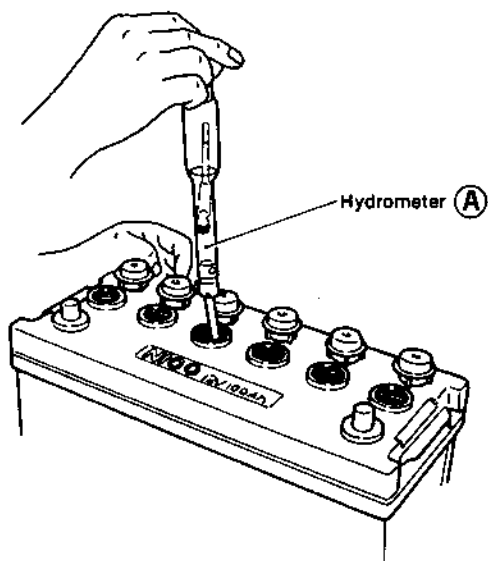
IMPORTANT:

Do not leave generator on battery for indefinite long periods. Overcharging will boil electrolyte and can damage battery.

The charging rate will be dependant on the internal condition (percent of charge) and size of the battery. A very cold battery, one that is sulfated or larger batteries charge at slower rates.

After charging battery, use a hydrometer (A) to determine the specific gravity. Refer to "Check Battery Special Gravity" in this section.

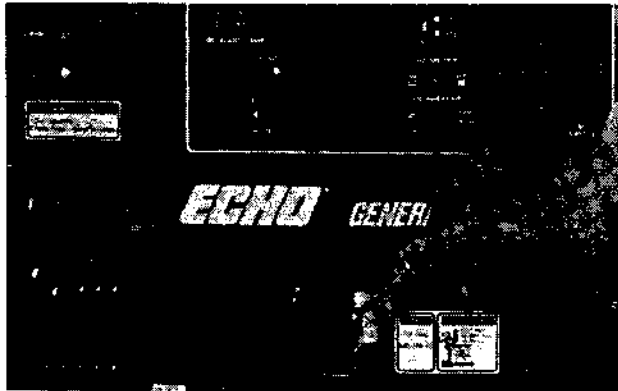
If higher percent of charge is desirable, put the generator back on the battery until desired level is reached.



Starting the Engine

CAUTION:

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



Check Oil Level

IMPORTANT:

Before starting engine for first time, add oil as unit is shipped dry. (See Changing Engine Oil in Service/50 Hours) (Breaking in after first 20 hrs.)

Do not start engine with AC or DC loads connected.

1. Fill fuel tank (see fuels and lubricants section).
2. Check engine oil level before each use.

IMPORTANT:

Never check or add oil while engine is running.



Fill Fuel Tank Using Safety Gascan

Breaking in a New Engine

Breaking in a new engine is very important. During the first 20 hours (considered the breaking in period), the engine will require special operating attention.

CAUTION:

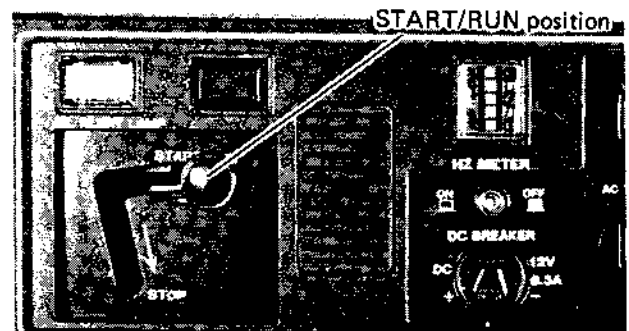
Subjecting the generator to heavy or maximum usage during the breaking in period could result in serious engine damage.

ENGINE BREAK IN REQUIREMENTS

- A. Allow engine to warm up at no-load for 5 minutes after starting engine.
- B. Avoid peak power loads during the break in period. Run only small power tools or appliances requiring low wattage.
- C. Place combination ignition switch/throttle lever to start run position.

IMPORTANT:

Do not set throttle knob at an intermediate position, as damage to generator or appliance could result.

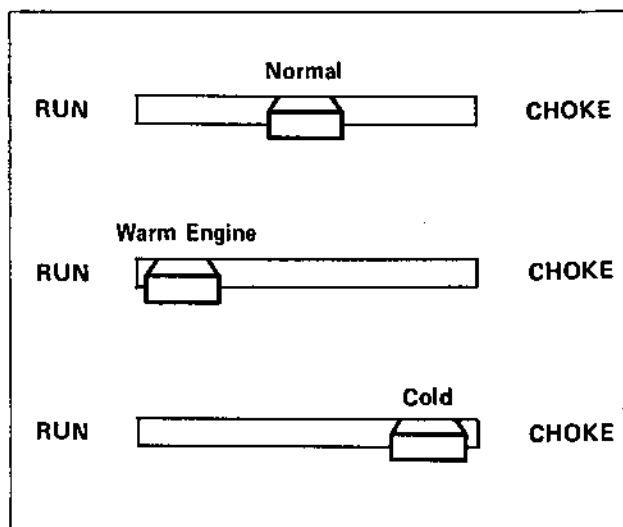


- D. Turn off AC circuit breaker (AC switch)



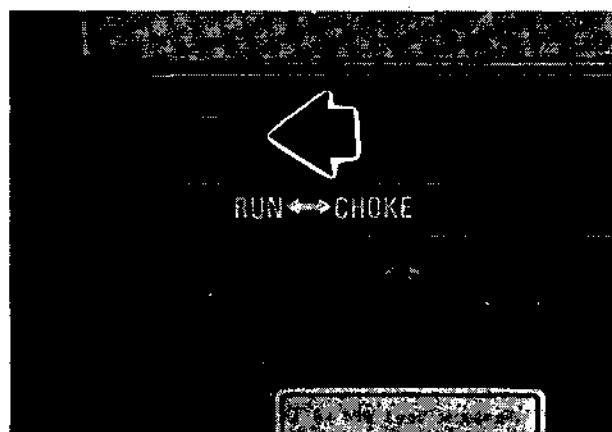
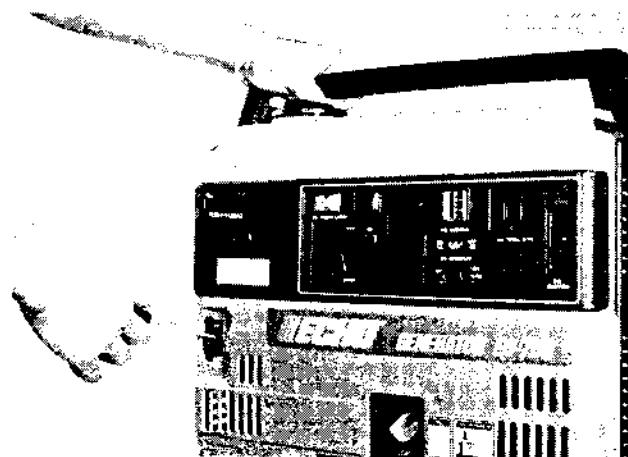
E. Setting (Run/Choke) Lever

1. Generally setting choke lever at halfway position is all that is required.
2. In cold weather move lever to full **CHOKE** position.
3. Restarting **WARM** engine move lever to **RUN** position.

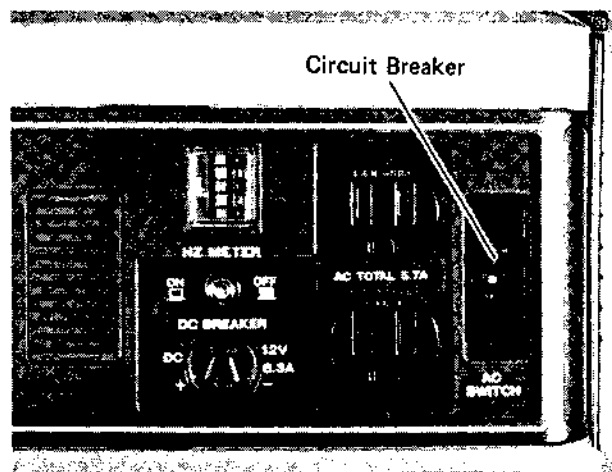
**IMPORTANT:**

Recoil starter may be damaged if starter handle is pulled abruptly, is allowed to snap back, or is pulled while engine is running.

- F. Firmly grasp generator handle with your left hand.
- G. With your right hand, slowly pull the starter handle until you feel the starter engage, approximately 3 to 4 inches.
- H. With a smooth, rapid motion pull the starter handle. It may require several pulls before engine starts.



- I. After the engine starts, gradually move run/choke lever to the **RUN** position.
- J. If engine fails to start use cold start procedure and repeat steps F.G., and H.
- K. Turn circuit breaker (AC switch to ON position.)



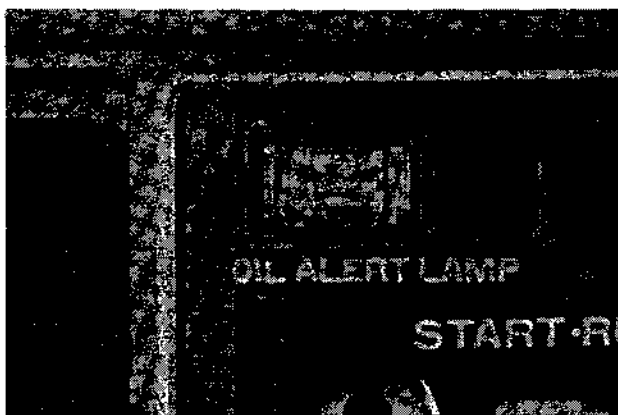
Circuit Breaker

Operating the Engine

LOW OIL LEVEL SHUTDOWN SYSTEM

If engine oil level is low or engine is placed on an incline exceeding 25°, "Low Oil Alert Lamp" will come on. Engine will continue to run approximately two seconds. Low oil level shutdown system is designed to automatically stop engine to help prevent damage. (See Checking Engine Oil Level in fuels and lubricants section.)

This is only an emergency device and is not intended to indicate when oil is needed.

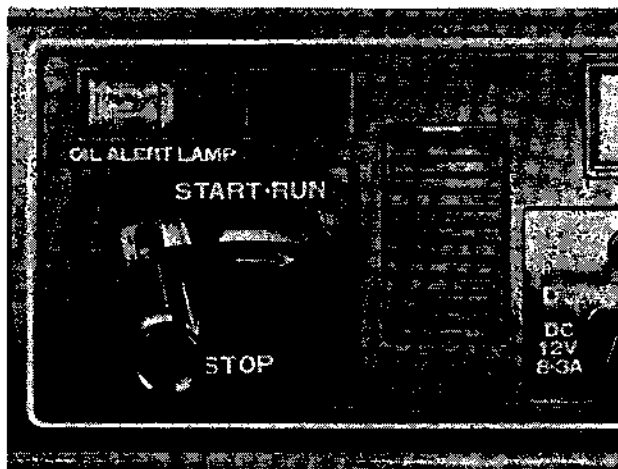


Oil Alert Lamp Location

Stopping the Engine

IMPORTANT:

Damage to the generator or appliance may result if generator is stopped under load.



Ignition Switch/Throttle Lever at STOP Position

Never stop engine abruptly. This will cause rapid heat build up, resulting in severe engine damage.

1. Disconnect all power cords from generator receptacles, including the (DC) 12-volt battery charger, if it is being used.
2. Turn off AC circuit breaker (AC switch).
3. Let the engine idle for approximately 1 minute at no-load.
4. Turn engine off by moving ignition switch/throttle lever to STOP position.

WARNING:

Allow generator and engine to cool before touching the unit or transporting the generator. Never touch a hot engine or muffler.

⚠ WARNING:

Do not attempt to make any electrical repairs or alter the unit in any way. All repairs and maintenance, other than what is explained in the General Maintenance section of your owner's manual, should be made by an authorized ECHO servicing dealer.

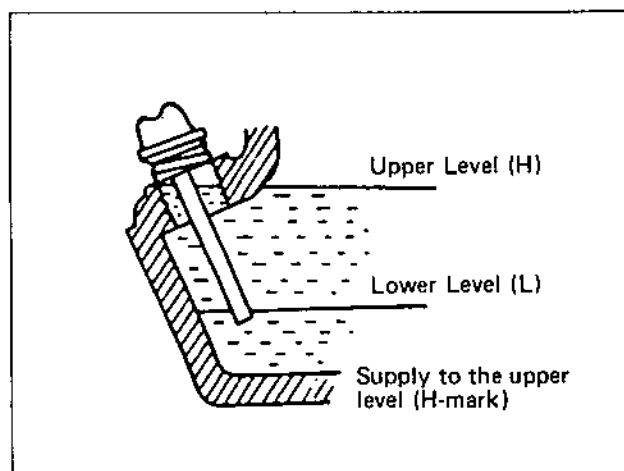
Service/before each use**CHECKING ENGINE OIL LEVEL****⚠ IMPORTANT:**

Never check or add oil while engine is running.

1. Stop engine and place generator on a level surface.
2. Wipe dirt and dust from around dipstick area.
3. Remove dipstick(A) and wipe clean.
4. Install dipstick.
5. Remove dipstick to check oil level.
6. Oil must be in between L and H marks.

⚠ IMPORTANT:

If oil level is at or below bottom of L mark on dipstick, do not run the engine.



Engine Oil Level

7. If oil level is low, add oil to bring oil level no higher than H mark area of dipstick. (See Engine oil in Fuels and Lubricants section for correct oil).

⚠ IMPORTANT:

Check O-ring placement and condition on dipstick before installing.

8. Install dipstick and tighten finger tight.

⚠ CAUTION:

The generator should be placed on a flat surface when refilling the crankcase. If the generator is tilted, over filling will result, causing the oil temperature to increase to the danger level during operation. If too little oil is added, serious engine damage could result.

CLEANING AIR FILTER ELEMENT**⚠ IMPORTANT:**

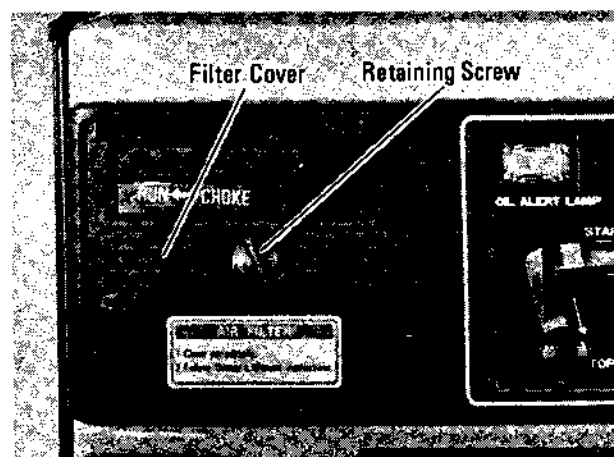
Do not run engine with element removed.

AIR FILTER

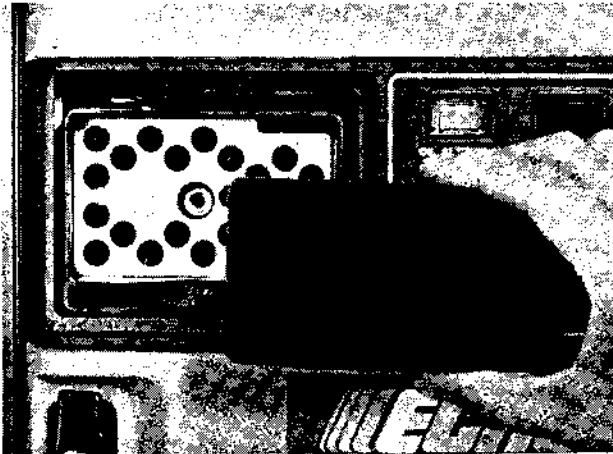
The air filter function is to keep dust and dirt out of the engine. Operating the generator with a dirty or defective filter can lead to costly engine damage.

To clean air filter:

- A. Brush or wipe away any dust, dirt or debris from around air filter cover.
- B. Take off air filter cover by removing retaining screw. Use a flat screwdriver.



- C. Remove foam element from air cleaner box.



- D. Wash element in liquid detergent and warm water. Wrap element in cloth and squeeze dry.
- E. Soak element in clean SAE30 engine oil. Squeeze to remove excess oil, then wrap in clean cloth and squeeze as dry as possible. (Be careful not to tear element.)
- F. Remove air filter back plate and clean with cleaning solvent.



- G. Dampen a clean cloth in solvent and wipe interior of a airbox.
- H. Reinstall air filter back plate.
- I. Reinstall air filter.
- J. Reinstall air filter cover.

NOTE:

Air filter should be cleaned periodically. Replace filter if torn or damaged.

SPARK PLUG

The spark plug (CJ-8 Champion or equivalent) should be cleaned periodically and changed as required.

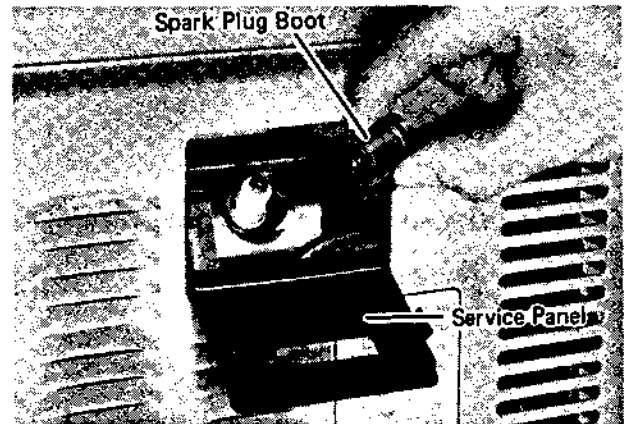
To remove spark plug:

- A. Turn engine On/Off switch to STOP position.

CAUTION:

Before checking spark plug:

- Stop engine
- Wait for engine to cool

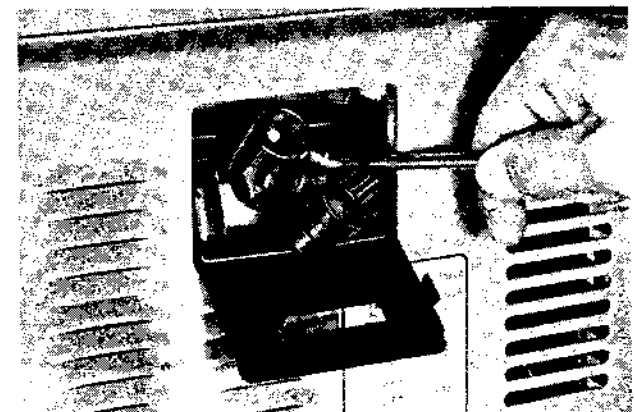


- B. Open service panel on back of unit.
- C. Disconnect rubber spark plug boot connector by twisting and pulling at the same time.
- D. Remove spark plug with spark plug wrench provided. (Plug Wrench is stored under the generator).

IMPORTANT:

Do not clean spark plugs in a machine using abrasives.

Clean spark plug by carefully scraping or with a wire brush.



WEAR FULL EYE PROTECTION DURING THIS OPERATIONS.

Inspect spark plug for:

- Cracked porcelain
- Pitted or damaged electrodes
- Other wear or damage

Check plug gap with a wire feeler gauge.

Gap must be 0.6 ~ 0.7 mm (0.024 ~ 0.028 in.).

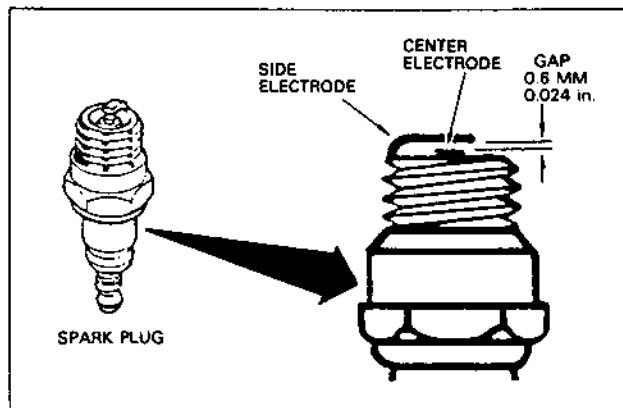
To change gap, bend only side electrode, using spark plug tool.

Install spark plug and tighten.

Connect spark plug wire.

Close spark plug service panel.

Store spark plug wrench in the space provided under the generator.

**FUEL TANK STRAINER**

The fuel tank filter should be cleaned after every 100 hours or as required.

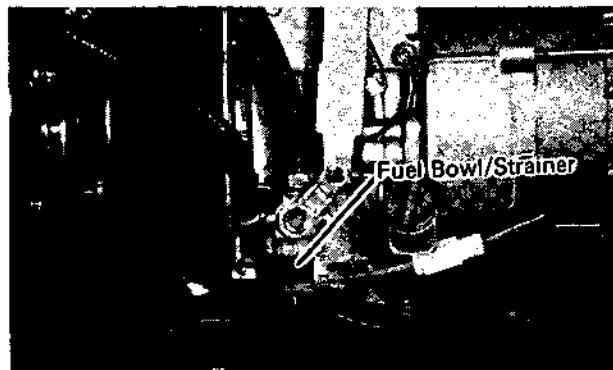


Tank Strainer

- A. To clean fuel strainer, remove fuel tank cap and lift out filter.
Wash in clean solvent.
Reinstall.

FUEL BOWL/STRAINER

The fuel bowl and strainer should be removed and cleaned after every 100 hours of operation by your ECHO servicing dealer.



Fuel Bowl/Strainer

SPARK ARRESTER SCREEN

An improperly maintained spark arrester screen can cause engine power loss and faulty functioning of exhaust system.

NOTE:

Spark arrester screens should be replaced after every 100 hours of operation by ECHO servicing dealer.

CAUTION:

Never operate unit without a spark arrester screen properly installed. (See safety instructions)

STORING FOR SHORT TIME BETWEEN JOBS

(90 days or less)

CAUTION:

Store generator in a dry place, out of reach of children. Do not store in an enclosure where fuel fumes may accumulate or reach an open flame or spark.

1. Clean, exterior of generator to remove all accumulations of grease, oil, dirt, or debris.
2. Perform any periodic lubrication or services are required.
3. Tighten all cap screws and nuts.
4. Touch-up paint as required.
5. Change engine oil. (See Changing Engine Oil in Service/50 hours section.)
6. Remove spark plug and pour 1/3 oz (10 milli-liters) of fresh engine oil into cylinder.
7. Place clean rag over spark plug hole.
8. Pull recoil starter handle twice to distribute oil.
9. Install spark plug leaving cable detached.
10. Close engine valves by pulling recoil starter handle until compression is felt, then pull handle 3 ~ 4 cm (1 ~ 2 in.) further.
11. Place a suitable cover over the generator.

STORING FOR LONG TIME BETWEEN JOBS

(Longer than 90 days)

Do not store generator for a prolonged period of time (3 to 6 months or longer) without having your ECHO servicing dealer perform protective storage maintenance which includes the following procedures.

- A. Changing engine oil.
- B. Lubricating combustion chamber.
- C. Draining and cleaning fuel tank and filter.
- D. Draining carburetor and cleaning fuel bowl and strainer.

REMOVING GENERATOR FROM STORAGE

Turn ignition On/Off switch to STOP position.

1. Check engine oil level.
2. Remove spark plug. Cover spark plug hole with clean rag.
3. Pull recoil starter handle several full strokes to remove oil from cylinder.
4. Check spark plug gap; install plug. Connect spark plug cable.
5. Check that guards and shields are fastened in place.
6. Start and run the engine 5 minutes before connecting an electrical load.

PREVENTIVE MAINTENANCE CHECK CHART

ITEM	MAINTENANCE	DAILY	EVERY 50 Hrs.	EVERY 100 Hrs.	EVERY 300 Hrs.	EVERY 1000 Hrs.	As Req.
Shroud screws	Inspect & Tighten	•					
Fuel Tank	Check & Refill Clean	•					Yearly
Spark Plug	Clean & Adjust Replace	•					•
Engine Oil	Check Change	•	•**				
Air Filter	Inspect Replace	•					•
Exhaust Port	Clean						•
Spark Arrester Screen	Inspect Replace	•		•			
Fuel Tank Filter	Clean			•			
Fuel Bowl/Strainer	Clean			•			
Fuel Hoses	Replace *						•
Starter Rope	Replace *						•
Carburetor	Clean *						Yearly
Piston Ring	Replace *						•
Shock Mounts	Inspect Replace *	•					•
Shroud	Clean						•
Circuit Breaker	Replace *						•
Receptacles	Inspect/ Replace *						•
Intake Valve	Reface / Replace *						•
Exhaust Valve	Reface/ Replace *						•

** First oil change at 20 hours

* Recommended for maintenance by an authorized ECHO servicing dealer

TROUBLESHOOTING

TROUBLESHOOTING GUIDE		
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Engine won't start	1. Unit loaded during start-up 2. Low on fuel or oil 3. Faulty spark plug 4. Ignition On/Off switch off	1. Remove load 2. Add fuel or oil 3. Replace 4. Turn to START RUN position
No electrical output	1. Faulty Circuit Breaker 2. Faulty Receptacle 3. Circuit Breaker off 4. Faulty Power Cord	1. Reset or replace 2. Replace 3. Turn to ON position 4. Inspect & Replace
Circuit breaker trips	1. Overload 2. Faulty equipment or cords	1. Reduce load 2. Inspect & replace