

CHICAGO Electric[®]Generators

800 RATED WATTS/900 MAXIMUM WATTS PORTABLE GENERATOR

Model 66619

OPERATION AND SERVICE INSTRUCTIONS



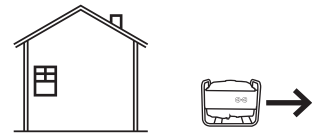
⚠ DANGER

Using a generator indoors **CAN KILL YOU IN MINUTES.**

Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage, **EVEN IF** doors and windows are open.



Only use **OUTSIDE** and far away from windows, doors, and vents.

Visit our website at: <http://www.harborfreight.com>



**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

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For technical questions or replacement parts, please call 1-800-444-3353.

Revised Manual 10e

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SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPORTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

CAUTION

CAUTION, without the safety alert symbol, is used to address practices not related to personal injury.



WARNING! Read all instructions. Failure to follow all instructions listed below may result in fire, serious injury and/or DEATH. The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

SAVE THESE INSTRUCTIONS

SET UP PRECAUTIONS

1. Gasoline fuel and fumes are flammable, and potentially explosive. Use proper fuel storage and handling procedures. Do not store fuel or other flammable materials nearby.
2. Have multiple ABC class fire extinguishers nearby.
3. Operation of this equipment may create sparks that can start fires around dry vegetation. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.
4. Set up and use only on a flat, level, well-ventilated surface.
5. Wear ANSI-approved safety goggles and heavy-duty work gloves during set up.
6. Use only oil and fuel recommended in the "Specifications" section of this manual.

OPERATING PRECAUTIONS

1.

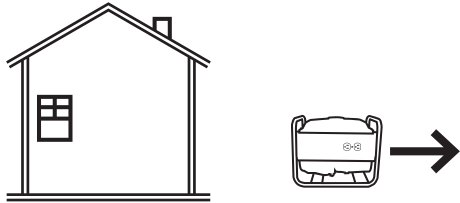


**CARBON MONOXIDE
HAZARD**
**Using a generator indoors
CAN KILL YOU IN MINUTES.**

Generator exhaust contains carbon monoxide. This is a poison you cannot see or smell.



NEVER use inside a home or garage,
EVEN IF doors and windows are open.



Only use OUTSIDE and far away from windows, doors, and vents.

2. Keep all safety guards in place and in proper working order at all times.
3. NEVER place fingers, hands, or body near the Generator when it is running. Do not lean or reach over the Generator when the machine is running.
4. Keep all people (except the operator) a minimum of six feet from the Generator during operation.
5. Do not transport the Generator with the Engine running.
6. Do not sit or stand on this machine.
7. Do not tilt the machine while the Engine is running.
8. Do not leave the Generator unattended when it is running. Turn off the Engine before leaving the area.

9. Wear ANSI-approved safety goggles, hearing protection, and heavy duty work gloves during use.
10. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to a heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near the engine's magneto or recoil starter.
11. Use only accessories that are recommended by Harbor Freight Tools for your model. Accessories that may be suitable for one piece of equipment may become hazardous when used on another piece of equipment.
12. Do not operate in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust. Gasoline-powered engines may ignite the dust or fumes.
13. Stay alert, watch what you are doing and use common sense when operating this piece of equipment. Do not use this piece of equipment while tired or under the influence of drugs, alcohol or medication.
14. Do not overreach. Keep proper footing and balance at all times. This enables better control of the equipment in unexpected situations.
15. Dress properly. Do not wear loose clothing or jewelry. Keep hair, clothing and gloves away from moving parts. Loose clothes, jewelry or long hair can be caught in moving parts.
16. Parts, especially exhaust system components, get very hot during use. Stay clear of hot parts.
17. Do not cover the Generator during operation.

18. Keep the equipment, Engine, and surrounding area clean at all times.
19. Use the equipment, accessories, etc., in accordance with these instructions and in the manner intended for the particular type of equipment, taking into account the working conditions and the work to be performed. Use of the equipment for operations different from those intended could result in a hazardous situation.
20. Do not operate the equipment with known leaks in the Engine's fuel system.
21. This product contains or, when used, produces a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. (California Health & Safety Code § 25249.5, *et seq.*)
22. When spills of fuel or oil occur, they must be cleaned up immediately. Dispose of fluids and cleaning materials as per any local, state, or federal codes and regulations. Store oil rags in a bottom-ventilated, covered, metal container.
23. Before use, check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the equipment's operation. **If damaged, have the equipment serviced before using.** Many accidents are caused by poorly maintained equipment.
24. Use the correct equipment for the application. Do not modify the equipment and do not use the equipment for a purpose for which it is not intended.

SERVICE PRECAUTIONS

1. **Before service, maintenance, or cleaning:**
 - a. **Turn the Power Switch of the Engine to its "OFF" position.**
 - b. **Allow the Engine to completely cool.**
 - c. **Then, remove the Spark Plug.**
2. Keep all safety guards in place and in proper working order. Safety guards include muffler, air cleaner, mechanical guards, and heat shields, among other guards.
3. Do not alter or adjust any part of the equipment or its Engine that is sealed by the manufacturer or distributor. Only a qualified service technician may adjust parts that may increase or decrease governed Engine speed.
4. Wear ANSI-approved safety goggles and heavy duty work gloves during service.
5. Maintain labels and nameplates on the equipment. These carry important information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
6. Have the equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the equipment is maintained. Do not attempt any service or maintenance procedures not explained in this manual or any procedures that you are uncertain about your ability to perform safely or correctly.
7. Store equipment out of the reach of children.
8. Follow scheduled Engine and equipment maintenance.
9. Refueling Precautions:

- Do not smoke, or allow sparks, flames, or other sources of ignition around the equipment, especially when refuelling.
- Do not refill the Fuel Tank while the engine is running or hot.
- Do not fill Fuel Tank to the top. Leave a little room for the fuel to expand as needed.
- Refuel in a well-ventilated area only.

10. **CAUTION:** This generator is not intended to power sensitive electronic equipment* without the addition of an appropriate line conditioner and surge protector (both not included). Sensitive electronic equipment should be operated on approved inverter type generators or pure sine wave generators.

If the plugged in product operates abnormally or unusually slow, immediately stop using the generator as a power source. Always read and adhere to the instruction manual of the product to be powered, to make sure that it can be safely and efficiently powered by a portable generator.

Note: When using a generator to provide home standby electricity, a transfer switch (sold separately) is needed to prevent back feeding power into the utility line.

Connections for standby power to a building electrical system must be made by a qualified electrician. The connection must isolate the generator power from utility power, and must comply with all applicable laws and electrical codes.

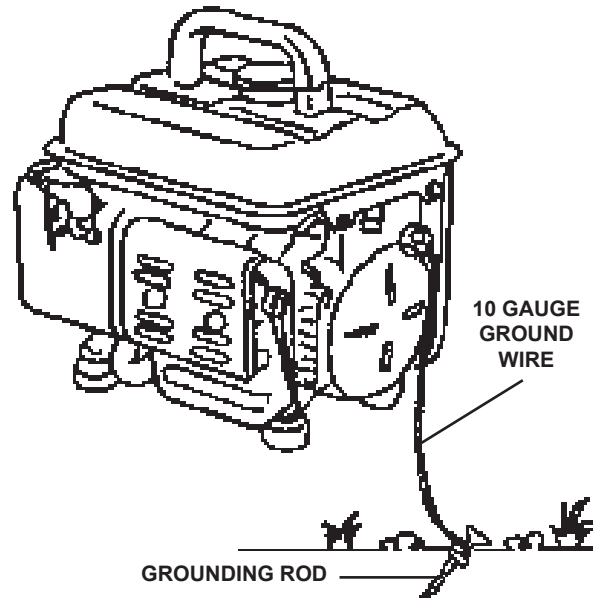
WARNING: Improper connections to a building electrical system can allow electrical current from the generator to backfeed into the utility lines. Such backfeed may electrocute utility company workers or others who contact the lines during a power outage, and the generator may explode, burn, or cause fires when utility power is restored. Consult the utility company or a qualified electrician.

* Sensitive electronic equipment includes, but is not limited to, audio/video equipment, some television sets, computers, and printers.

AC APPLICATIONS

1. Before connecting an appliance or power cord to the generator: Make sure that it is in good working order. Faulty appliances or power cords can create a potential for electrical shock.
 2. If an appliance begins to operate abnormally, becomes sluggish or stops suddenly, turn it off immediately. Disconnect the appliance, and determine whether the problem is the appliance, or if the rated load capacity of the generator has been exceeded.
 3. Make sure that the electrical rating of the tool or appliance does not exceed that of the generator. Never exceed the maximum power rating of the generator. Power levels between rated and maximum may be used for no more than 30 minutes.
 4. Substantial overloading will open the circuit breaker. Exceeding the time limit for maximum power operation or slightly overloading the generator may not switch the circuit breaker or circuit protector OFF, but will shorten the service life of the generator.
2. All connections and conduits from the Generator to the load must only be installed by trained and licensed electricians, and in compliance with all relevant local, state, and federal electrical codes and standards, and other regulations where applicable.
 3. The Generator must be earth-grounded in accordance with all relevant electrical codes and standards before operation.
 - A 10-gauge copper wire should be used to connect the ground terminal of the Generator to a grounding rod. A wire that is too thin may not provide sufficient electrical current carrying capacity to be an adequate ground path.

FIGURE A



⚠ SAVE THESE INSTRUCTIONS.

GENERATOR PRECAUTIONS

Set Up:

1. Do not connect the Generator directly into a home's utility electrical line. Do not plug this Generator into an outlet in the home. Connecting a generator directly to a utility power supply can "back feed" along the power lines and kill or injure utility workers working on the lines.
 4. Insulate all connections and disconnected wires.
- The other end of the ground wire must be securely fastened to an approved ground source. **(See Figure A.)** Refer to local regulations for ground source information. If unsure of regulations or procedures, obtain assistance from a licensed or certified electrician.

5. Connect the Generator only to a load or electrical system (120 V~) that is compatible with the electrical characteristics and rated capacities of the Generator.
6. Set up the Generator outdoors in a well-ventilated, dry area, away from building air intakes. The Generator should be protected from direct exposure to rain and snow. Do not set up the Generator on a conductive surface such as a metal deck.

Operation:

1. Do not attempt to connect or disconnect load connections while standing in water, or on wet or soggy ground.
2. Do not touch electrically energized parts of the Generator and interconnecting cables or conductors with any part of the body, or with any non-insulated conductive object.
3. Use only Class BC or Class ABC fire extinguishers on electrical fires.
4. Do not overload the Generator. Overloading can cause fires in the electrical cords, in addition to Generator and appliance damage.

Service:

Keep all electrical equipment clean and dry. Replace any wiring where the insulation is cracked, cut, abraded, or otherwise degraded. Replace terminals that are worn, discolored, or corroded. Keep terminals clean and tight.

BASIC SPECIFICATIONS

Fuel	Required Mixture (50:1)	50 Parts 89+ octane unleaded gasoline mixed with 1 part 2-cycle oil
	Capacity	1.1 Gallons

Note: Additional specifications found in the TECHNICAL ENGINE SPECIFICATIONS chart in this manual.

The emission control system for this engine is warranted for standards set by the U.S. Environmental Protection Agency and by the California Air Resources Board (also known as CARB). For warranty information, refer to the last pages of this manual.

At high altitudes, the engine's carburetor, governor, and any other parts that control the fuel-air ratio will need to be adjusted by a qualified mechanic to allow efficient high-altitude use and to prevent damage to the engine and any other devices used with this product.

UNPACKING

When unpacking, make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at 1-800-444-3353 as soon as possible.

THIS UNIT CAN POWER THE FOLLOWING ITEMS

ITEM	RUNNING WATTS	START-UP WATTS
Ten 75 Watt Light Bulbs	750	
1/4HP Compressor	600	900
1/6HP Motor	500	800
3/8" Drill	400	600
Mini Refrigerator	400	700
15 Amp Battery Charger	380	
String Trimmer	350	500
Table/Box Fan	200	300
Radio	50	

NOTE: Wattages listed above are estimates for that type of equipment only. Check nameplate wattages on all loads before connecting to Generator.

OPERATING INSTRUCTIONS



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.



TO PREVENT SERIOUS INJURY:

Operate only with proper spark arrestor installed. Operation of this equipment may create sparks that can start fires around dry vegetation.

The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

Note: For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

Starting the Engine

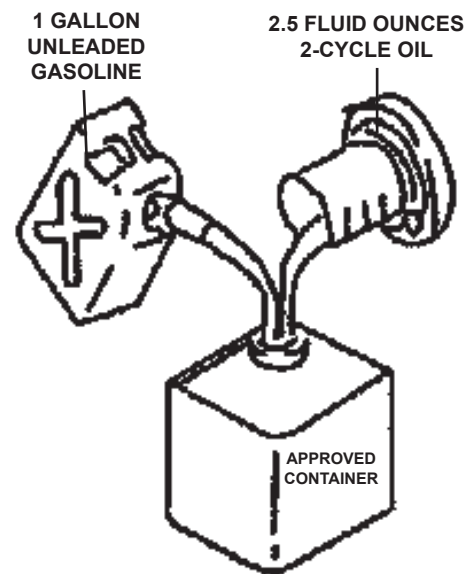
Inspect the Generator looking for damaged, loose, and missing parts before set up and starting. If any problems are found, do not use the unit until properly repaired.

Checking and Filling The Fuel Tank:

CAUTION! Your Warranty is VOID if the Engine's Fuel Tank (73) is not filled with the proper mixture (50:1) of **unleaded gasoline and 2-cycle oil** before each use. Before each use, check the fuel level. Do not run the Engine with an improper unleaded gasoline/2-cycle oil mixture. Running the Engine with an improper mixture WILL permanently damage the Engine.

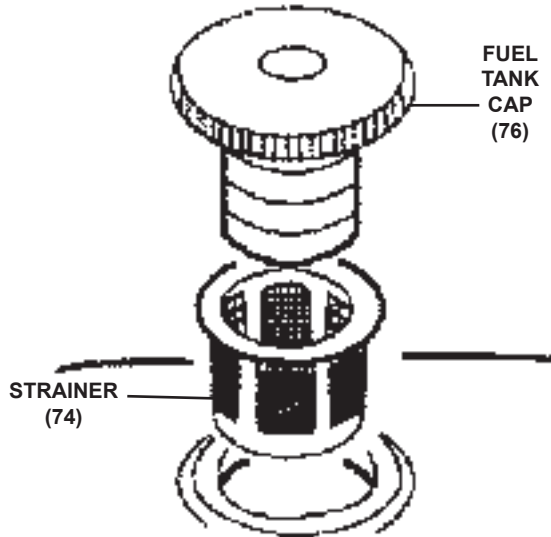
1. The Fuel Tank (73) holds approximately **1 gallon** of fuel.

FIGURE B



2. To obtain the proper gasoline and 2-cycle oil mixture, mix **2.5 fluid ounces of 2-cycle oil with 1 gallon of unleaded gasoline** into an approved container. Then slowly shake the container to thoroughly mix the gasoline/2-cycle oil. (See Figure B.)

FIGURE C



3. Remove the Fuel Tank Cap (76) and check the fuel level. (See Figure C.)



⚠WARNING! TO PREVENT SERIOUS INJURY FROM FIRE: Fill the Fuel Tank (73) in a well-ventilated area away from ignition sources. Do not smoke.

4. To fill the Fuel Tank (73), first wipe off the Fuel Tank Cap (76) and the surrounding area. (See Figure C.)
5. Unscrew, and remove the Fuel Tank Cap (76). (See Figure C.)
6. Remove the Strainer (74) and remove any dirt and debris. Then replace the Strainer. (See Figure C.)
7. Fill the Fuel Tank (73) to about 1 inch under the fill neck of the Tank with the pre-mixed unleaded gasoline/2-cycle oil mixture.
8. Then replace the Fuel Tank Cap (76). (See Figure C.)

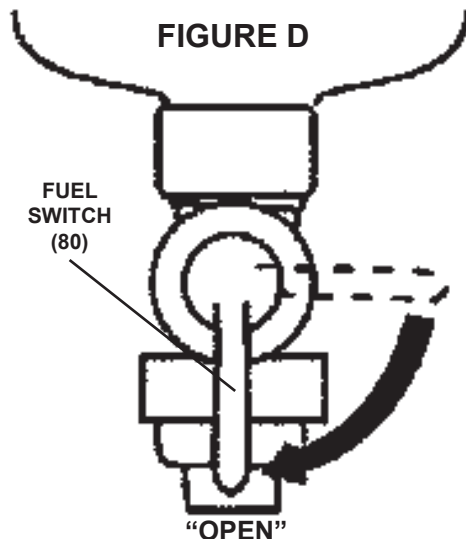
Start Procedure:



Before starting the Engine:

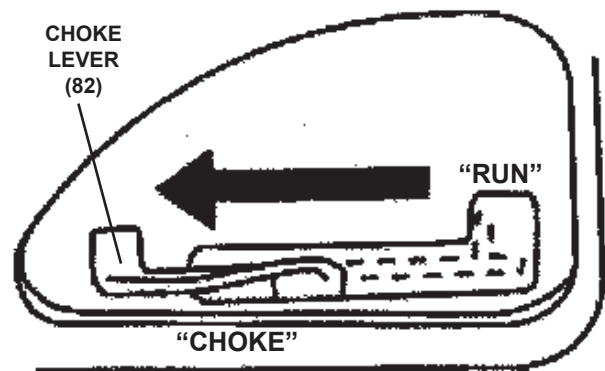
- a. Inspect the Generator and Engine.
- b. Fill the Fuel Tank (73) with the proper amount and type of unleaded gasoline and 2-cycle oil. (See Figures B and C.)
- c. NOTE: Only after the Generator has stabilized and is running smoothly should an appliance or tool be plugged into the AC Outlet of the Generator.

FIGURE D



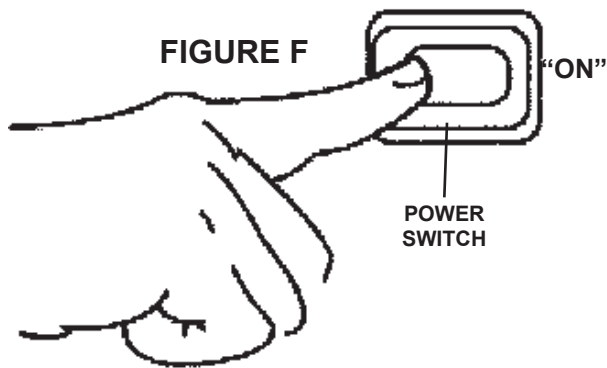
1. Turn the Engine Fuel Switch (80) to its "OPEN" position. (See Figure D.)

FIGURE E

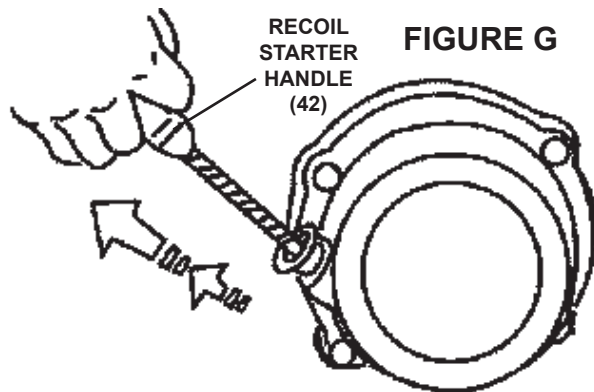


2. Turn the Engine Choke Lever (82) to its "CHOKE" position. Set the Choke Lever

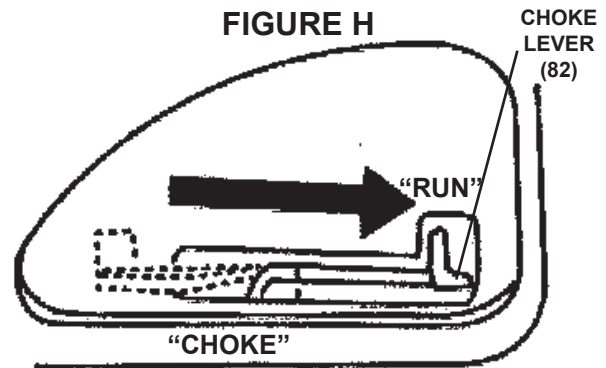
in the “**RUN**” position when starting a warm Engine. (See Figure E.)



3. Then turn the Engine Power Switch to its “**ON**” position. (See Figure F.)



4. Grasp the Recoil Starter Handle (42) and pull slowly until resistance is felt. While holding the Handle, allow the Starter Rope to rewind slowly. Then, pull the Starter Handle with a rapid, full arm stroke. Once again while holding the Handle, allow the Rope to rewind slowly. Repeat as necessary, until the Engine starts. (See Figure G.)



5. After the Engine starts and warms up, slowly move the Choke Lever (82) to its “**RUN**” position. (See Figure H.)
6. **IMPORTANT:** Allow the Engine to run at no load until warm (approx. 3 minutes) after each start-up to allow the Engine to stabilize.

Break-in Period:

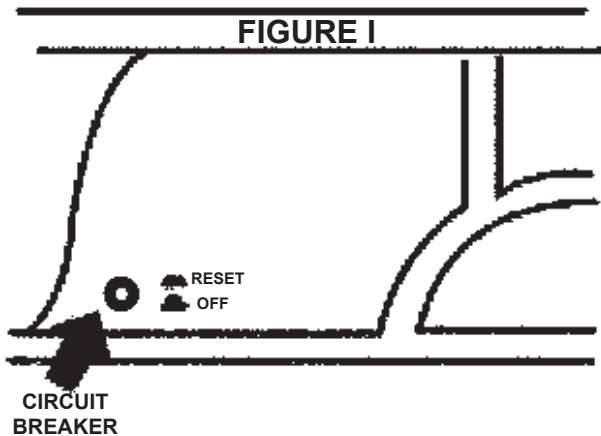
1. Breaking-in the Engine will help to ensure proper equipment and Engine operation, and will extend the Engine’s lifespan. The warranty is void if the Engine is not broken in properly. The first 25 hours of operation is the break-in period.
 - During this time frame, **DO NOT** exceed 75% of the Generator’s load limit. In other words, the maximum load during this break-in period should be no more than 600 watts.
 - After the first 25 hours of use:
 - Change the unleaded gasoline/2-cycle oil fuel mixture.

Under normal operating conditions subsequent maintenance follows the schedule explained in the **MAINTENANCE AND SERVICING** section.

Equipment Operation

Load And Circuit Breaker:

1. The total combined load through the outlet on the Generator must not exceed the rated maximum power (800 watts) of the unit.



2. Always reduce the load if the AC Circuit Breaker turns off. Once the load is reduced, press the Breaker to reset the Generator and continue operation. (See Figure I.)

Calculating Power Draw:

Power draw can be calculated by multiplying *volts* and *amps*. The resulting number is *wattage*.

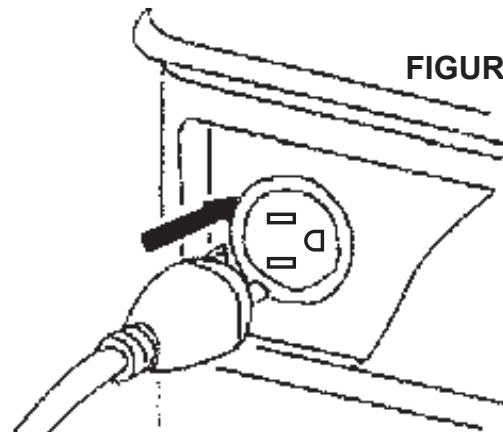
- Never exceed the rated maximum wattage (800) for the Generator or outlet.
- Refer to appliance/tool owner's manuals to determine the wattage of electrical load devices.
- Long power cords and extension cords draw additional power. Keep cord length at a minimum.

AC Application:

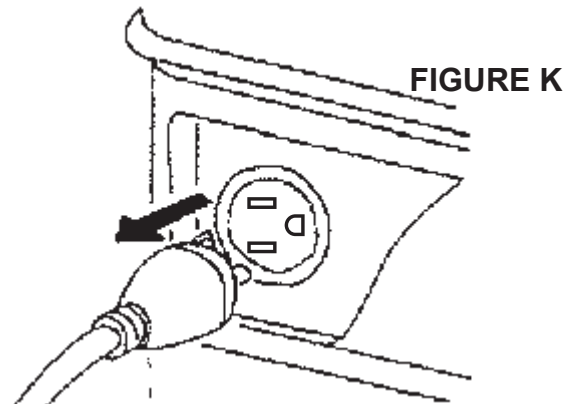
1. Allow the Engine to run at no load until warm (approx. 3 minutes) after each start-up to allow the Engine to stabilize.

SKU 66619

For technical questions, please call 1-800-444-3353.



2. Plug the power cord of the 120 volt appliance/tool into the 120 volt AC Outlet on the Generator. (See Figure J.)
3. **NOTE: Do not allow the generator to completely run out of fuel with devices attached. A generator's output may sharply spike as it runs out of fuel, causing damage to attached devices.**



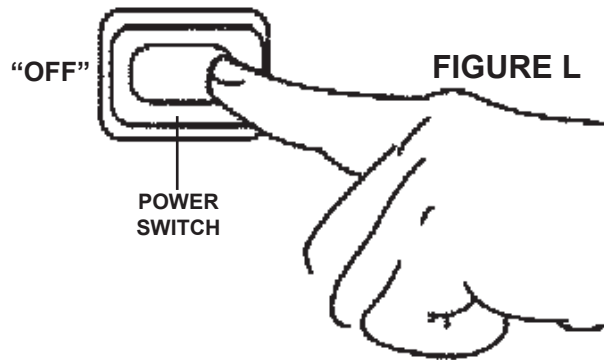
3. When finished using the appliance/tool, unplug its power cord from the AC Outlet on the Generator. (See Figure K.)

Generator Shut Off:

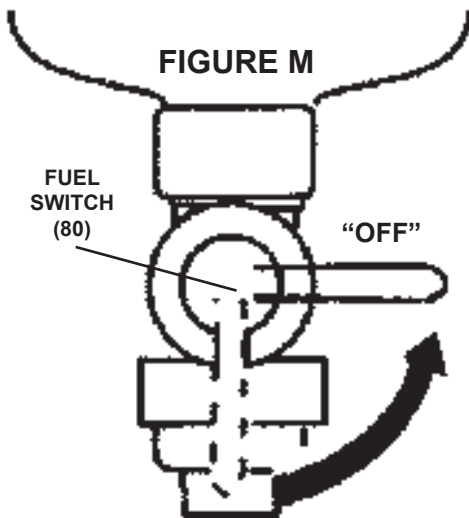
1. Remove all electrical load devices from the Generator. (See Figure K.)
2. Allow the Engine to run for approximately 3 minutes with no electrical load.

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3. Turn off the Generator's Power Switch to stop the Engine.
(See Figure L.)



4. Turn the Fuel Switch (80) to its "OFF" position. (See Figure M.)
5. Allow the Generator to completely cool before storing.

SPECIFICATIONS

Engine Type	Air Cooled, 2-Stroke, Single Cylinder, Horizontal Shaft.
Engine Starter Type	Recoil Starter
Engine Power Rating	2.0 H.P.
Displacement	63cc
Required Fuel Mixture (50:1)	50 Parts 89+ Octane Unleaded Gasoline Mixed with 1 Part 2-Cycle Oil
Fuel Tank Capacity	1.1 Gallons
Spark Plug Gap	0.028"~0.031"
Spark Plug Arrestor Present	No
Engine Run Time with Full Tank at 50% Load	Approximately 5 Hours
AC Receptacle Type	NEMA120 volt / 3-prong, grounded (Qty. 1) 60 Hz with 7 AMP Circuit Breaker
Generator Rated Output Power	800 Watts
Generator Maximum Output Power	900 Watts
Accessories	Spark Plug Wrench (Qty. 1)

SERVICING



TO PREVENT SERIOUS INJURY

FROM ACCIDENTAL STARTING:
Turn the Power Switch of the Engine to its "OFF" position, wait for the Engine to cool, and remove the Spark Plug wire before performing any inspection, maintenance, or cleaning procedures.



TO PREVENT SERIOUS INJURY

FROM EQUIPMENT FAILURE:
Do not use damaged equipment. If abnormal noise, vibration, or excess smoking occurs, have the problem corrected before further use.

Maintenance Procedures



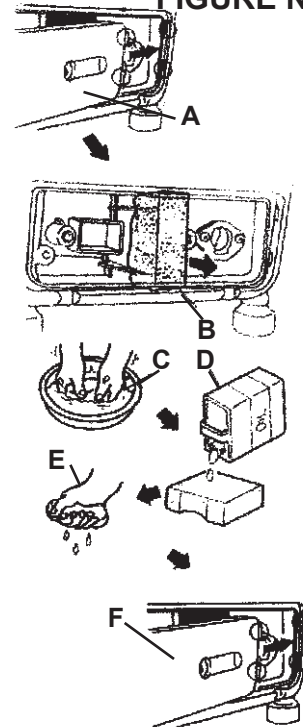
Many maintenance procedures, including those not detailed in this manual, will need to be performed by a qualified technician for safety. If you have any doubts

about your ability to safely service the equipment or Engine, have a qualified technician service the equipment instead.

Note: Warranty is void if proper maintenance and servicing procedures are not followed.

Air Filter Element Maintenance:

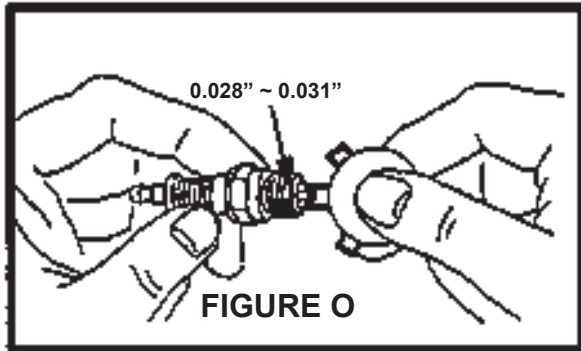
FIGURE N



1. Wipe off the Air Cleaner Cover. Then remove the Cover. (See Figure N.)
2. Remove the Air Filter Element.
3. Wash the Air Filter Element in warm water and mild detergent several times. Rinse. Squeeze out excess water and allow it to dry completely. Soak the Filter in lightweight oil briefly, then squeeze out the excess oil.
4. Install the new Air Filter Element or the cleaned Filter. Secure the Air Cleaner Cover before use.

Spark Plug Maintenance:

1. Disconnect Spark Plug Wire from end of plug. Clean out debris from around Spark Plug.
2. Using the spark plug wrench provided, remove the Spark Plug.
3. Inspect the Spark Plug:
If the electrode is oily, clean it using a clean, dry rag. If the electrode has deposits on it, polish it using emery paper. If the white insulator is cracked or chipped, the Spark Plug needs to be replaced.



4. When installing a new Spark Plug, adjust the Plug's gap to the specification on the Technical specification chart and in the illustration below. Do not pry against the electrode or the insulator, the Spark Plug can be damaged. **(See Figure O.)**
5. Install the new Spark Plug or the cleaned Spark Plug into the Engine. Gasket-style: Finger-tighten until the gasket contacts the cylinder head, then about 1/2-2/3 turn more.
Non-gasket-style: Finger-tighten until the plug contacts the head, then about 1/16 turn more.

Cleaning, Maintenance, and Lubrication Schedule: Engine

Note: This maintenance schedule is intended solely as a general guide. If performance decreases or if the Engine operates unusually, check systems immediately. The maintenance needs of this Engine will differ depending on factors such as temperature, air quality, fuel quality, and other factors.

Note: These procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the Engine.

After Initial 25 Operation Hours:

- a. Change unleaded gasoline and 2-cycle oil fuel mixture.

Every 25 Operation Hours Thereafter:

- a. Clean/replace Air Filter Element.
- b. Inspect/clean Spark Plug.

Every 50 Operation Hours:

- a. Change unleaded gasoline and 2-cycle oil fuel mixture.

Every 100 Operation Hours:

- a. Replace Spark Plug.
- b. Replace Air Filter Element.

Note: All maintenance procedures scheduled for 25, 50, and 100 operation hours should be performed at least yearly.

Every 300 Operation Hours:

- a. Clean Fuel Tank and Carburetor assembly.
- b. Clean carbon build-up from Combustion Chamber.

Storage

1. Wait for the Engine to cool, then clean the Engine with a clean cloth.
2. When the equipment is to remain idle for longer than 20 days, prepare the Engine for storage as follows:
 - a. Empty the Fuel Tank and drain all fuel lines.
 - b. Clean out area around Spark Plug. Remove Spark Plug and pour one tablespoon of engine oil into Cylinder through Spark Plug hole.
 - c. Reinstall Spark Plug, but leave the Spark Plug Wire disconnected.
 - d. Pull Starter Handle to distribute oil in Cylinder. Stop after one or two revolutions when you feel the Piston start the compression stroke (when you start to feel resistance).
3. Apply a thin coat of rust preventive oil to all uncoated metal parts.
4. Cover and store in a dry, well-ventilated area out of reach of children.

Maintenance and Cleaning **Schedule: Generator**

Before Every Use:

- a. Check to make sure all bolts and nuts are tight.
- b. Check for any damage to the Generator. If damaged, do not use until repaired by a qualified service technician.

After Every Use:

- a. Allow the unit to completely cool. Then clean the exterior of the Generator with a clean cloth.

TROUBLESHOOTING - ENGINE

Problem	Possible Causes	Probable Solutions
Engine will not start	FUEL RELATED: 1. Improper gasoline/2 cycle oil mix. 2. No fuel in tank or fuel valve closed. 3. Choke not in start position, especially with cold engine. 4. Low quality or deteriorated, old gasoline. 5. Carburetor not primed. 6. Dirty fuel passageways blocking fuel flow. 7. Carburetor needle stuck. Fuel can be smelled in the air. 8. Too much fuel in chamber. This can be caused by a stuck carburetor needle.	FUEL RELATED: 1. Mix 50 parts unleaded gasoline with 1 part 2-cycle oil. 2. Fill fuel tank and open fuel valve. 3. Move choke to start position if engine is cold. 4. Use only fresh 89+ octane unleaded gasoline and 2-cycle oil mixture. 5. Prime carburetor by pressing priming bulb specified number of times (if equipped). 6. Clean out passageways using fuel additive. Heavy deposits may require further cleaning. 7. Gently tap side of carburetor float chamber with screwdriver handle. 8. Turn choke to run position. Remove spark plug and pull the start handle several times to air out the chamber. Reinstall spark plug and set choke to start position.
	IGNITION (SPARK) RELATED: 1. Spark plug wire not connected securely. 2. Spark plug electrode wet or dirty. 3. Incorrect spark plug gap. 4. Spark plug wire or spark plug broken. 5. Incorrect spark timing or faulty ignition system.	IGNITION (SPARK) RELATED: 1. Connect spark plug wire properly. 2. Clean spark plug. 3. Correct spark plug gap. 4. Replace spark plug wire and/or spark plug. 5. Have qualified technician diagnose/repair ignition system.
	COMPRESSION RELATED: 1. Cylinder not lubricated. Problem after long storage periods. 2. Loose or broken spark plug. (Hissing noise will occur when trying to start.) 3. Loose cylinder head or damaged head gasket. (Hissing noise will occur when trying to start.) 4. Engine valves or tappets misadjusted or stuck.	COMPRESSION RELATED: 1. Pour tablespoon of oil into spark plug hole. Crank engine a few times and try to start again. 2. Tighten spark plug. If that does not work, replace spark plug. If problem persists, may have head gasket problem, see #3 below. 3. Tighten head. If that does not remedy problem, replace head gasket. 4. Adjust valve clearance. If that does not work, clean or replace valves/tappets.



Follow all safety precautions whenever diagnosing or servicing the equipment or engine.

TROUBLESHOOTING - ENGINE

Problem	Possible Causes	Probable Solutions
Engine misfires	<ol style="list-style-type: none"> 1. Spark plug wire loose. 2. Incorrect spark plug gap or damaged spark plug. 3. Defective spark plug wire. 4. Old or low quality gasoline. 5. Incorrect compression. 	<ol style="list-style-type: none"> 1. Check wire connections. 2. Re-gap or replace spark plug. 3. Replace spark plug wire. 4. Use only fresh 89+ octane unleaded gasoline and 2-cycle oil mixture. 5. Diagnose and repair compression. (Use Engine will not start: COMPRESSION RELATED section.)
Engine stops suddenly	<ol style="list-style-type: none"> 1. Fuel tank empty or full of impure or low quality gasoline. 2. Defective fuel tank cap creating vacuum, preventing proper fuel flow. 3. Improper idle speed. 4. Faulty magneto, incorrect timing, or clogged carburetor. 	<ol style="list-style-type: none"> 1. Fill fuel tank with fresh 89+ octane unleaded gasoline and 2-cycle oil mixture. 2. Test/replace fuel tank cap. 3. Properly adjust idle speed. 4. Have qualified technician diagnose and service engine.
Engine knocks	<ol style="list-style-type: none"> 1. Old or low quality gasoline. 2. Engine overloaded. 3. Incorrect spark timing, deposit buildup, worn engine, or other mechanical problems. 	<ol style="list-style-type: none"> 1. Fill fuel tank with fresh 89+ octane unleaded gasoline and 2-cycle oil mixture. 2. Do not exceed equipment's load rating. 3. Have qualified technician diagnose and service engine.
Engine backfires	<ol style="list-style-type: none"> 1. Impure or low quality gasoline. 1. Engine too cold. 2. Choke not open after engine warm. 3. Engine not properly adjusted for high altitude operation. 4. Intake valve stuck, choke stuck, incorrect timing, clogged carburetor, or overheated engine. 	<ol style="list-style-type: none"> 1. Fill fuel tank with fresh 89+ octane unleaded gasoline and 2-cycle oil mixture. 2. Use cold weather fuel and oil additives to prevent backfiring. 3. Move choke to run position after engine warms up. 4. Qualified technician must adjust engine at altitudes greater than 5,000 feet above sea level. 5. Have qualified technician diagnose and service engine.



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TROUBLESHOOTING - GENERATOR UNIT

Possible solutions shown below should only be carried out by a qualified technician.

Problem	Possible Cause	Possible Solutions
Zero output from receptacles	1. Engine speed is too slow	1. Adjust engine speed(ask repair shop for help)
	2. Open or shorted wiring	2. Clean and reconnect all wiring
	3. Faulty capacitor	3. Replace capacitor
	4. Open/ shorted rotor or stator windings	4. Test wiring resistance, replace winding if necessary
	5. Open rectifier	5. Test rectifier, replace if necessary
Low output voltage with no load	1. Engine speed is too slow	1. Adjust engine speed(ask repair shop for help)
	2. Open rectifier	2. Test rectifier, replace if necessary
	3. Faulty capacitor	3. Replace capacitor
	4. Open/shorted rotor or stator windings	4. Test winding resistance, replace winding if necessary
	5. Alternator not magnetized	5. Re-magnetize the alternator
High output voltage with no load	1. Faulty capacitor	1. Replace capacitor
	2. Engine speed is too fast	2. Adjust engine speed
Low output voltage under load	1. Open rectifier	1. Test rectifier, replace if necessary
	2. Engine speed is too low at full load	2. Adjust engine speed(ask repair shop for help)
	3. Excessive load applied	3. Reduce the applied load
Erratic output voltage	1. Dirty, corroded, or loose wiring connection	1. Referring to the wiring diagram, clean and reconnect all wiring
	2. Unbalanced load applied	2. Remove all loads, then apply each one individually to determine which one is causing erratic output.
Noisy operation	1. Loose generator or engine bolt	1. Tighten all mountings
	2. Short circuit in generator field or load	2. Test winding resistance, replace field winding if necessary; Test load devices for shorts. Replace defective load device
	3. Faulty bearing	3. Replace bearing



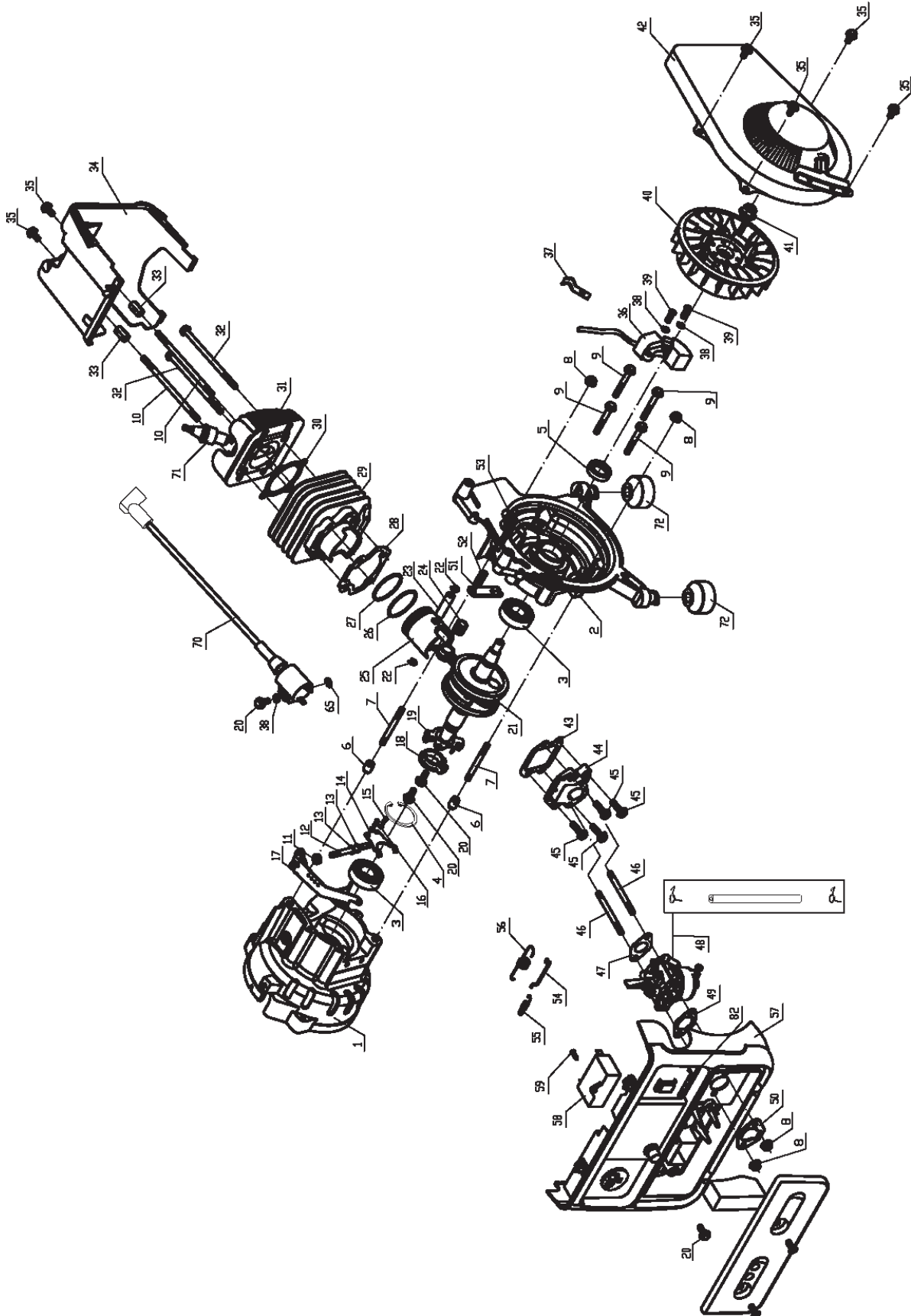
Follow all safety precautions whenever diagnosing or servicing the equipment or engine.

PARTS LIST

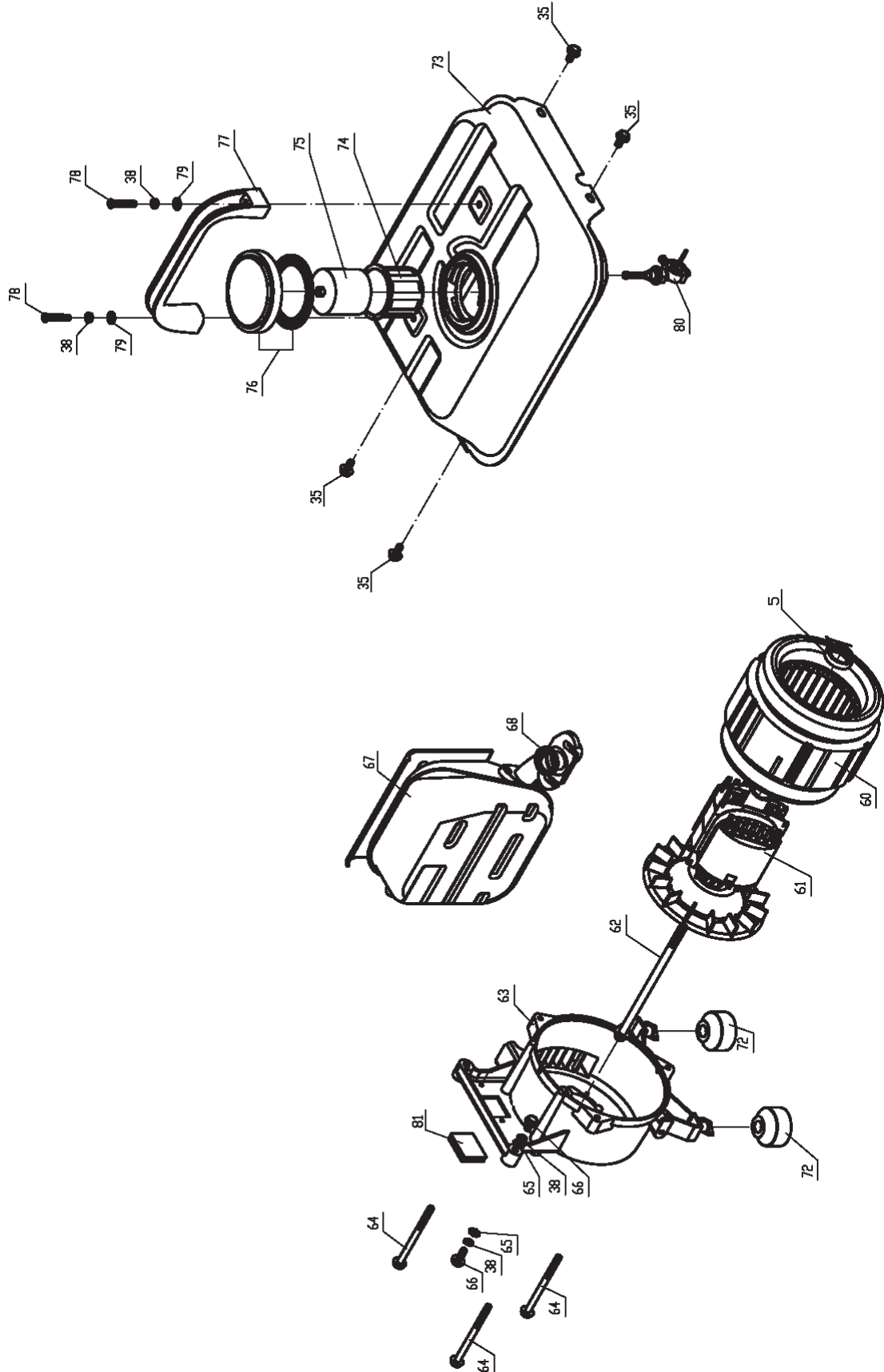
Part	Description	Qty.
1	Left Crankcase	1
2	Right Crankcase	2
3	Bearing (6004)	2
4	Hole Circlip (#42)	1
5	Oil Seal (20 x 30 x 7)	2
6	Pin (10 x 7 x 14)	2
7	Stud (AM6 x 50)	2
8	Flange Nut (M6)	4
9	Flange Bolt (M6 x 45)	4
10	Stud (AM6 x 100)	2
11	Oil Seal (6 x 12 x 7)	1
12	Governor Shaft	1
13	Washer (6 x 10)	2
14	Governor Fork	1
15	Cross Round Head Bolt (M3 x 8)	2
16	Spring Washer (#3)	2
17	Governor Arm	1
18	Collar Bushing	1
19	Weight Comp	1
20	Flange Bolt (M6 x 16)	4
21	Crankshaft Assy.	1
22	Circlip	2
23	Piston Pin	1
24	Roller Bearing (14 x 10 x 14)	1
25	Piston	1
26	Second Piston Ring	1
27	First Piston Ring	1
28	Cylinder Gasket	1
29	Cylinder	1
30	Cylinder Cap Gasket	1
31	Cylinder Cap	1
32	Flange Bolt (M6 x 105)	2
33	Nut (M6 x 18)	2
34	Cylinder Cap Cover	1
35	Flange Bolt (M6 x 12)	10
36	Ignition Coil Assy.	1
37	Clamp	1
38	Spring Washer (#6)	7
39	Cross Round Head Bolt (M6 x 16)	2
40	Flywheel	1
41	Flange Nut (M10 x 1.25)	1

Part	Description	Qty.
42	Recoil Starter Assy.	1
43	Intake Valve Gasket	1
44	Intake Valve Assy.	1
45	Flange Bolt (M6 x 20)	4
46	Stud (AM6 x 60)	2
47	Intake Gasket	1
48	Carburetor	1
49	Carburetor Gasket (B)	1
50	Carburetor Gasket (A)	1
51	Supporting Plate	1
52	Compression Spring	1
53	Cross Round Head Bolt (M6 x 40)	1
54	Rod Link	1
55	Tension Spring	1
56	Governor Spring	1
57	Control Panel	1
58	Capacitor	1
59	Self Tapping Screw (ST4.2 x 13)	1
60	Alternator Stator	1
61	Alternator Rotor	1
62	Flange Bolt (M8 x 156)	1
63	Rear Cover	1
64	Flange Bolt (M6 x 80)	3
65	Washer (#6)	3
66	Flange Bolt (M6 x 10)	2
67	Muffler	1
68	Muffler Gasket	1
69	Flange Bolt (M6 x 16)	2
70	CDI Winding	1
71	Spark Plug	1
72	Absorber	4
73	Fuel Tank	1
74	Strainer	1
75	Fuel Cup	1
76	Fuel Tank Cap	1
77	Handle	1
78	Cross Round Head Bolt (M6 x 30)	1
79	Washer (#6)	2
80	Fuel Switch	1
81	Rubber	1
82	Choke Lever	1

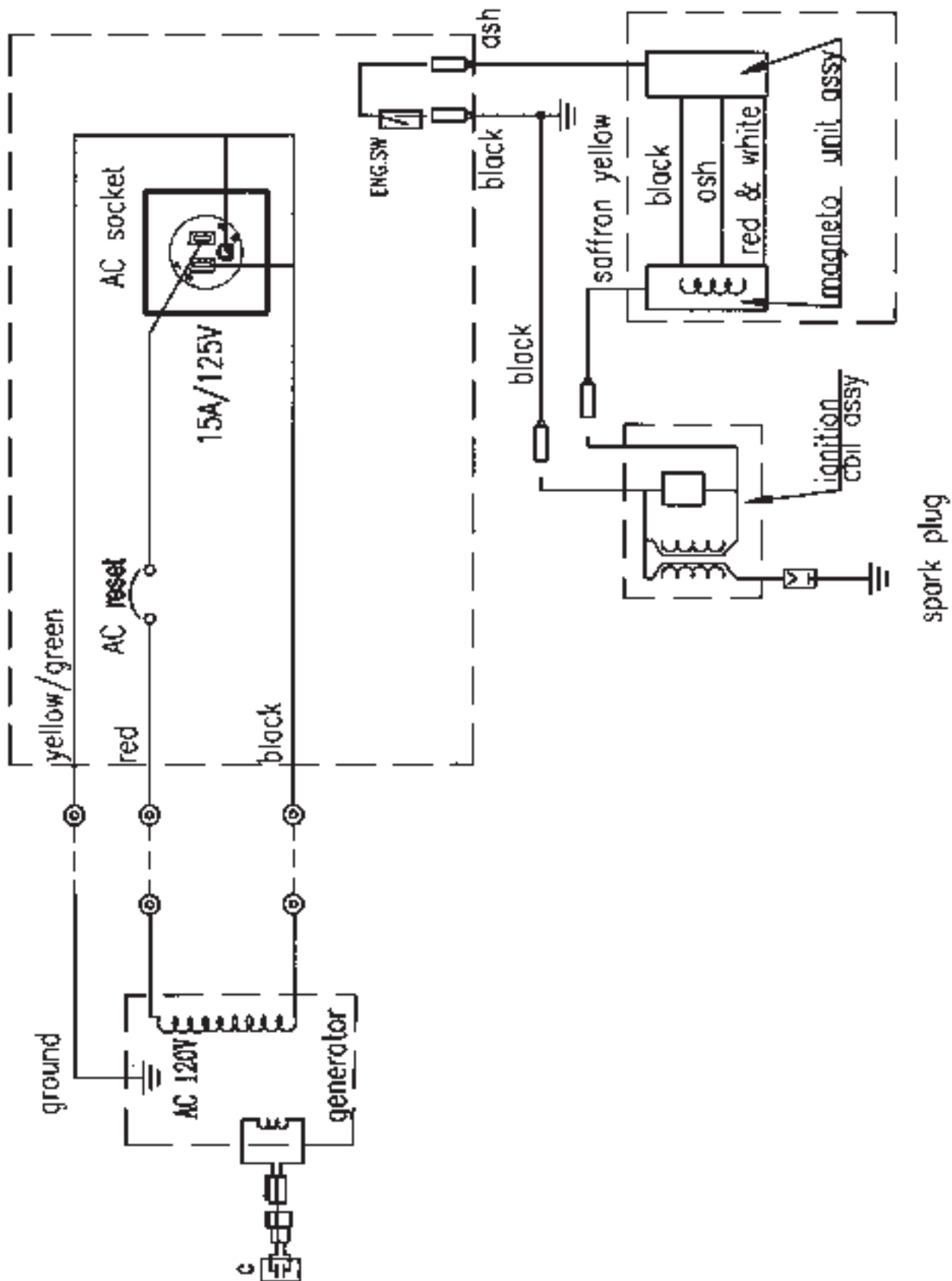
ASSEMBLY DIAGRAM



ASSEMBLY DIAGRAM - CONTINUED



WIRING DIAGRAM



LIMITED 1 YEAR / 90 DAY WARRANTY

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that for a period of ninety days from date of purchase that the engine/motor, the belts (if so equipped), and the blades (if so equipped) are free of defects in materials and workmanship. Harbor Freight Tools also warrants to the original purchaser, for a period of one year from date of purchase, that all other parts and components of the product are free from defects in materials and workmanship (90 days if used by a professional contractor or if used as rental equipment). This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**3491 Mission Oaks Blvd.
PO Box 6009 • Camarillo, CA 93011
(800) 444-3353**

EMISSION CONTROL SYSTEM WARRANTY

California and United States Emission Control Defects Warranty Statement

The California Air Resources Board (herein CARB), the United States Environmental Protection Agency (herein EPA), and Harbor Freight Tools (herein HFT) are pleased to explain the emission control system warranty on your 1995 and later Small Off-Road Engine (herein engine). In California, the engine must be designed, built and equipped to meet the State's stringent anti-smog standards. Elsewhere in the United States, new off-road, spark-ignition engines certified for model year 1997 and later, must meet similar standards set forth by the EPA. HFT must warrant the emission control system on your engine for the periods of time described below, provided there has been no abuse, neglect or improper maintenance of your engine.

Your emission control system may include parts such as the carburetor or fuel-injection system, and the ignition system. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, HFT will repair your engine at no cost to you including diagnosis, parts and labor.

Manufacturer's Warranty Coverage

The 1995 and later engines are warranted for two (2) years. If any emission-related part on your engine is defective, the part will be repaired or replaced by HFT.

Harbor Freight Tools Emission Control Defects Warranty Coverage

Engines are warranted for a period of two (2) years relative to emission control parts defects, subject to the provisions set forth below. If any emission related part on your engine is defective, the part will be repaired or replaced by HFT.

1. Owner's Warranty Responsibilities

As the engine owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. HFT recommends that you retain all receipts covering maintenance on your engine, but HFT cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the engine owner, you should, however, be aware that HFT may deny you warranty coverage if your engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.

You are responsible for shipping your engine to a HFT warranty station as soon as a problem exists. Contact the HFT Customer Service department at the number below to make shipping arrangements. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact the Harbor Freight Tools Customer Service Department at 1-800-444-3353.

Harbor Freight Tools Emission Control Defects Warranty Provisions

1. Length of Coverage

HFT warrants to a first retail purchaser and each subsequent purchaser that the engine is free from defects in materials and workmanship that cause the failure of warranted parts for a period of two (2) years after the date of delivery to the first retail purchaser.

2. No Charge Repair or Replacement

Repair or replacement of any warranted part will be performed at no charge to the owner if the work is performed through a warranty station authorized by HFT. For emissions warranty service, contact the HFT Customer Service Department at 1-800-444-3353.

3. Consequential Damages Coverage

Coverage under this warranty shall also extend to the failure of any engine components caused by the failure of any warranted part while it is still covered under this warranty.

4. Coverage Exclusions

Warranty claims shall be filed in accordance with the provisions of the HFT warranty policy explained in the box at the top of the previous page. HFT shall not be liable for any loss of use of the engine, for any alternative usage, for any damage to goods, loss of time, or inconvenience. Warranty coverage shall also be excluded for any part which fails, malfunctions, or is damaged due to failure to follow the maintenance and operating instructions set forth in the Owner's Manual including, but not limited to:

1. Use of parts which are not authorized by HFT
2. Improper installation, adjustment or repair of the engine or of any warranted part unless performed by an authorized warranty center
3. Failure to follow recommendations on fuel use contained in the Owner's Manual
4. Improper or inadequate maintenance of any warranted parts
5. Repairs performed outside of the authorized warranty service dealers
6. Alterations by changing, adding to or removing parts from the engine.

5. Service and Maintenance

Component parts which are not scheduled for replacement as required maintenance or are scheduled only for regular inspection to the effect of "repair or replace as necessary" are warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time up to the first scheduled replacement point for that part. Any replacement part, provided it is equivalent in durability and performance, may be used in performance of maintenance or repairs. The owner is responsible for commissioning a qualified technician/mechanic to perform all required maintenance, as outlined in the Inspection, Cleaning, and Maintenance section in this manual.

6. Warranted Parts

1. Fuel Metering System
 - i. Carburetor and its internal parts.
 - ii. Fuel pump (if so equipped).
 - iii. Cold start enrichment system.
2. Air Induction System
 - i. Intake pipe/manifold.
 - ii. Air cleaner.
3. Ignition System
 - i. Spark plug.
 - ii. Magneto ignition system.
4. Catalyst System (if so equipped)
 - i. Exhaust pipe stud.
 - ii. Muffler.
 - iii. Catalytic converter (if so equipped).
5. Miscellaneous Items Used in Above Systems
 - i. Vacuum, temperature and time sensitive valves and switches.
 - ii. Hoses, belts, connectors, and assemblies.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Record Product's Serial Number Here:

Note: If product has no serial number, record month and year of purchase instead.

Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.