

McGRAW-EDISON

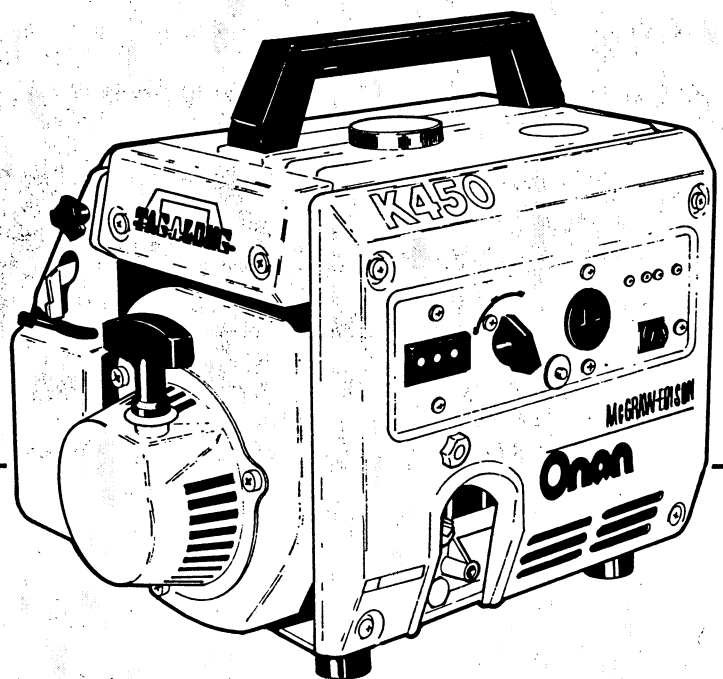
**Onan**

# Operator's Manual

450 - 1000 Watts

K-Series  
GenSets

- **Portable Generators**



981-0122

12-83

Printed in U.S.A.

# Safety Precautions

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The following symbols in this manual signal potentially dangerous conditions to the operator or equipment. Read this manual carefully. Know when these conditions can exist. Then, take necessary steps to protect personnel as well as equipment.

## **WARNING**

*This symbol is used throughout this manual to warn of possible serious personal injury.*

## **CAUTION**

*This symbol refers to possible equipment damage.*

Fuels, electrical equipment, batteries, exhaust gases and moving parts present potential hazards that could result in serious, personal injury. Take care in following these recommended procedures.

- **Use Extreme Caution Near Gasoline. A constant potential explosive or fire hazard exists.**

Do not fill fuel tank with hot engine or engine running. Do not smoke or use open flame near the unit or the fuel tank.

Do not store or transport the generator set without first removing the fuel from the fuel tank.

Have a fire extinguisher nearby. Be sure extinguisher is properly maintained and be familiar with its proper use. Extinguishers rated ABC by the NFPA are appropriate for all applications. Consult the local fire department for the correct type of extinguisher for various applications.

- **Guard Against Electric Shock**

Disconnect electric power before removing protective shields or touching electrical equipment. Use rubber insulative mats placed on dry wood platforms over floors that are metal or concrete when around electrical equipment. Do not wear damp clothing (particularly wet shoes) or allow skin surfaces to be damp when handling electrical equipment.

Jewelry is a good conductor of electricity and should be removed when working on electrical equipment.

**DO NOT PLUG PORTABLE GENERATOR SET DIRECTLY INTO A HOUSE RECEPTACLE TO PROVIDE EMERGENCY POWER.** It is possible for current to flow from generator into the utility line. This creates extreme hazards to anyone working on lines to restore power. Consult an electrician in regard to emergency power use.

Use extreme caution when working on electrical components. High voltages can cause severe injury or death.

Follow all state and local electrical codes. Have all electrical installations performed by a qualified licensed electrician.

- **Do Not Smoke While Servicing Batteries**

Batteries emit a highly explosive gas that can be ignited by electrical arcing or by smoking.

- **Exhaust Gases Are Toxic**

Engine exhaust contains CARBON MONOXIDE, a dangerous gas that is potentially lethal. Avoid carbon monoxide inhalation by operating the generator set outdoors where exhaust gases can be discharged directly into the open air.

Do not operate the generator set in any type of enclosure that could allow exhaust gases to accumulate. Direct exhaust away from areas where people are gathered and away from buildings or enclosures.

- **Keep the Unit and Surrounding Area Clean**

Remove all oil deposits. Remove all unnecessary grease and oil from the unit. Accumulated grease and oil can cause overheating and subsequent engine damage and may present a potential fire hazard.

Do NOT store anything on the generator set such as oil cans, oily rags, chains, wooden blocks, etc. A fire could result or operation may be adversely affected. Keep clean and dry.

- **Protect Against Moving Parts**

Avoid moving parts of the unit. Loose jackets, shirts or sleeves should not be worn because of the danger of becoming caught in moving parts.

Make sure all nuts and bolts are secure. Keep power shields and guards in position.

If adjustments must be made while the unit is running, use extreme caution around hot exhaust, moving parts, etc.

Do not work on this equipment when mentally or physically fatigued.

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<b>WARNING</b>
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MANUFACTURER RECOMMENDS THAT ALL SERVICE INCLUDING INSTALLATION OF REPLACEMENT PARTS BE DONE BY QUALIFIED ELECTRICAL AND/OR MECHANICAL SERVICE PERSONNEL. TO PREVENT POSSIBLE INJURY AND/OR EQUIPMENT DAMAGE IT IS IMPORTANT THAT ALL SERVICE PERSONNEL BE QUALIFIED.

# Introduction

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## ABOUT THIS MANUAL

This manual provides operation, maintenance, and adjustment information for your portable generator set. Read the manual completely before operating your generator set. Observe all cautions and warnings.

## YOUR GENERATOR SET

Your generator set is designed for convenient, portable power. Using the generator set properly and following a regular maintenance schedule can result in longer unit life and safer operation. The SPECIFICATIONS table lists your model, generator rating, capacities, and engine data.

## HOW TO OBTAIN SERVICE

When the generator set requires servicing, contact an Onan service representative. Always furnish the complete model number and serial number.

For future reference, fill in the model number from the nameplate in the space provided here. Also note the serial number located on the engine blower housing and list that here too.

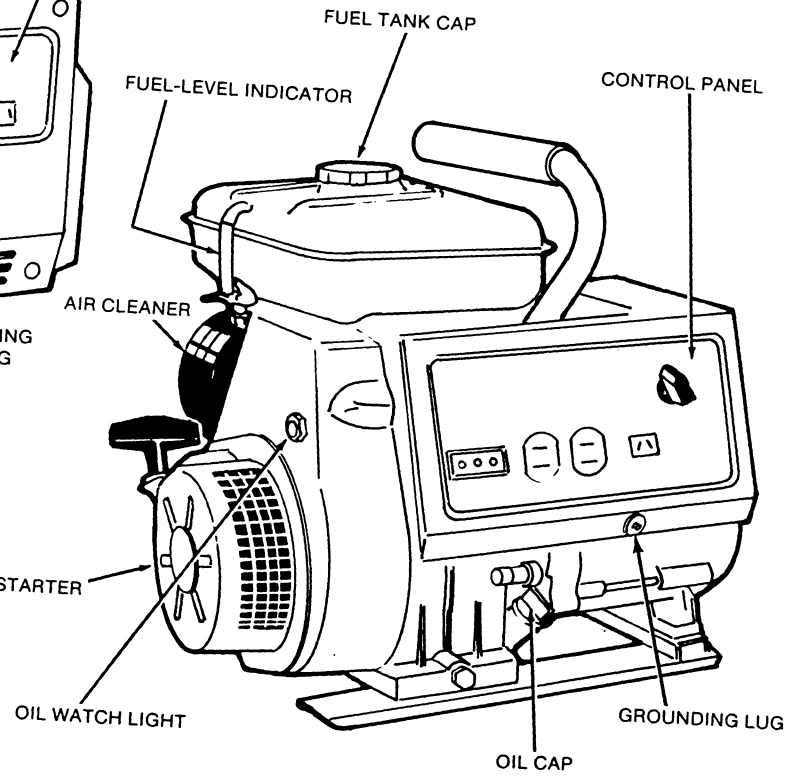
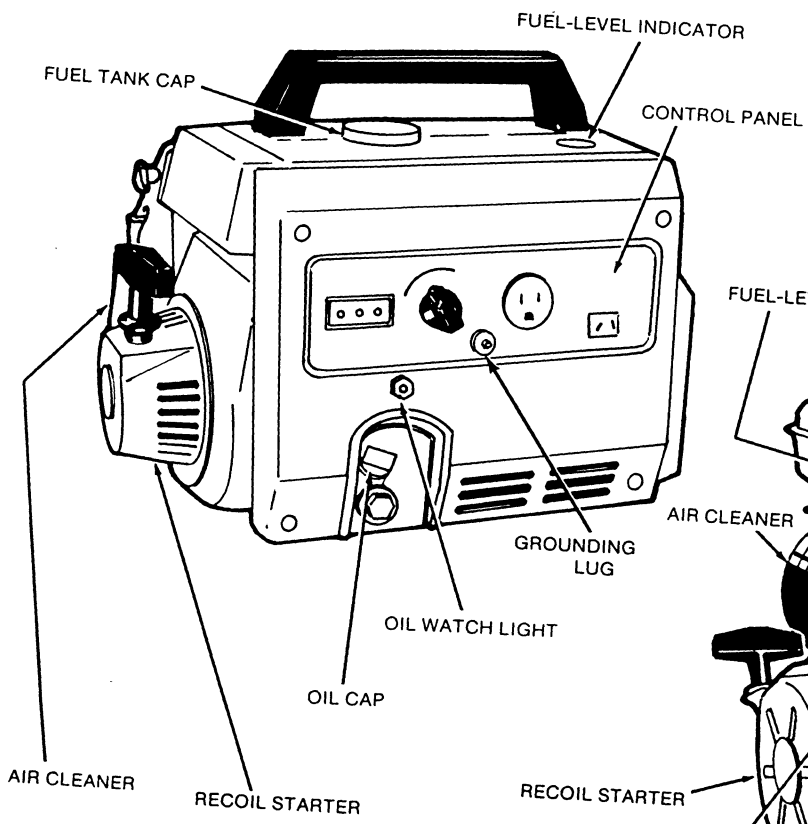
Model Number	
Serial Number	

# Specifications

	K450 (0.4KH-1P/1A)	K1000 (1.0KJ-1P/1A)
AC Output - 60 Hertz		
Voltage	120	120
Watts - Max. Output	450	1000
Watts - Rated Output	400	800
Amperes - Rated Current	3.3	6.7
DC Output		
Watts		100
Volts x Amperes		12 x 8.3
Engine Displacement	3.36 in. <sup>3</sup> (55 cm <sup>3</sup> )	7.93 in. <sup>3</sup> (130 cm <sup>3</sup> )
Starting System	recoil starter	
Fuel	regular-grade gasoline	
Fuel Tank Capacity	2.1 qt (2 L)	3.2 qt (3 L)
Oil Capacity*	10.8 oz (0.32 L)	18.6 oz (0.55 L)
Spark Plug Gap	0.28 in. (0.7 mm)	

\*See *MAINTENANCE* for oil requirements.

**Model K450 (0.4KH-1P/1A)**



**Model K1000 (1.0KJ-1P/1A)**

M-1538

**FIGURE 1. MODELS K450 AND K1000**

# Operation

## PRE-STARTING CHECKS

Before starting the generator set, be sure it has sufficient oil and gasoline, and that it is generally ready for operation. Note the separate checks following.

### Engine Oil

Make sure the generator set is level when you are checking the engine oil. Otherwise, you will have an inaccurate oil level indication. Remove the oil cap from the engine. The oil level should appear to the top of the oil port. See Figures 1 and 2.

**WARNING** Crankcase pressure might blow out hot oil and cause serious burns. Do

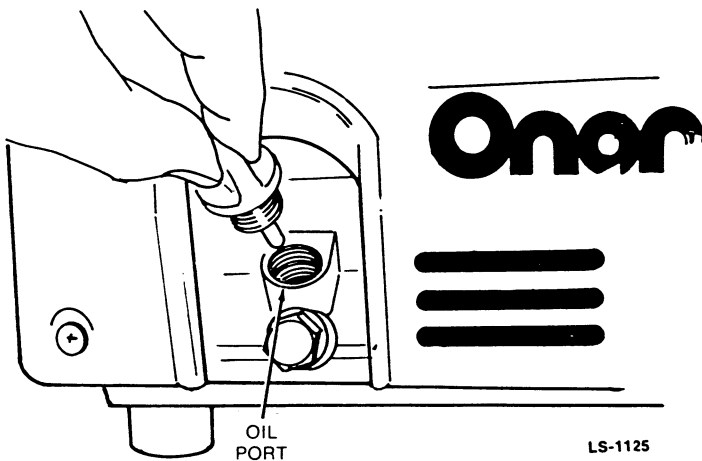


FIGURE 2. CHECKING OIL LEVEL

*not attempt to check oil while the generator set is running.*

If you do need to add oil, add oil until it reaches the top of the oil port. Use an oil as specified in the MAINTENANCE section.

### Fuel

**WARNING** Ignition of fuel might cause serious personal injury or death by fire or explosion. Never fill the fuel tank when the engine is hot or running, and never permit any flame, cigarette, or other ignition source near the fuel system.

Note the preceding warning. Fill the fuel tank with regular-grade gasoline. Figure 1 shows location of the fuel-level indicators and fuel tank cap. If generator set will operate on a slight grade, do not fill completely.

**WARNING** Ignition of fuel might cause serious personal injury or death by fire or explosion. Be sure flexible fuel level indicator (on Model K1000) is secure and undamaged. If it looks damaged or loose, install a new one before starting generator set.

### Grounding Requirements

Local code enforcement might require that the generator set be electrically connected to a grounding electrode (water pipe, earth-driven grounding rod, etc.) during operation. A grounding lug is provided for connecting the generator set to a grounding electrode conductor if required. See Figure 1.

**WARNING**

## EXHAUST GAS IS DEADLY!

*Exhaust gases contain carbon monoxide, a poisonous gas that might cause unconsciousness and death. It is an odorless and colorless gas formed during combustion of hydrocarbon fuels. Symptoms of carbon monoxide poisoning are:*

- Dizziness
- Headache
- Weakness and Sleepiness
- Vomiting
- Muscular Twitching
- Throbbing in Temples

*If you experience any of these symptoms, get out into fresh air immediately, shut down the unit and do not use until it has been inspected.*

*The best protection against carbon monoxide inhalation is proper installation and regular, frequent visual and audible inspections of the complete exhaust system. If you notice a change in the sound or appearance of exhaust system, shut the unit down immediately and have it inspected and repaired at once by a competent mechanic.*

**WARNING**

1. If faulty electrical equipment is connected to the generator, an electrical shock hazard exists which might result in serious personal injury or death. Check all electrical equipment for frayed cords or breaks in the insulation before using.

2. Properly applied and maintained ground fault circuit interrupters, often required by local codes, can afford additional protection against the hazard of electrical shock.

**General**

Give the generator set a visual inspection for loose bolts and nuts, oil leaks, fuel leaks, and exhaust leaks. Repair any problems before starting the generator set.

**STARTING**

After checking the generator set as described under *Pre-Starting*, follow these steps in sequence.

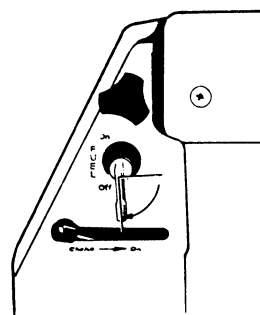
**WARNING**

1. Inhalation of exhaust gases might result in serious personal injury or death. Do not operate generator set in poorly-ventilated areas such as indoors, tanks, confined areas, depressions, or any areas where exhaust gases might accumulate. Face the exhaust toward well-ventilated areas so exhaust gases will not accumulate during operation.

2. Due to the danger of personal injury or death, do not operate the generator set in hazardous areas where it might ignite gases, combustibles, or explosive materials.

3. Because a generator set presents the hazard of electrical shock that might cause serious personal injury or death, never expose the generator set to rain, snow, or other similar wet conditions when operating.

1. Open the fuel valve. See Figure 3.



MODEL K450

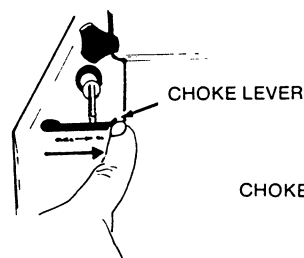


MODEL K1000

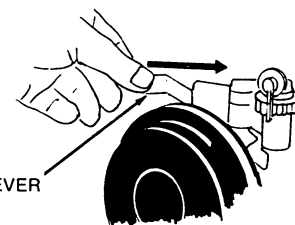
FS-1546

**FIGURE 3. OPENING THE FUEL VALVE**

2. Close the choke if the engine is cold (engine has not run for awhile). Figure 4 shows the chokes of the two models.
3. Move the Selector Switch on the control panel to AC 120 V or DC 12 V as required. At STOP, the engine will not start. See Figure 5.

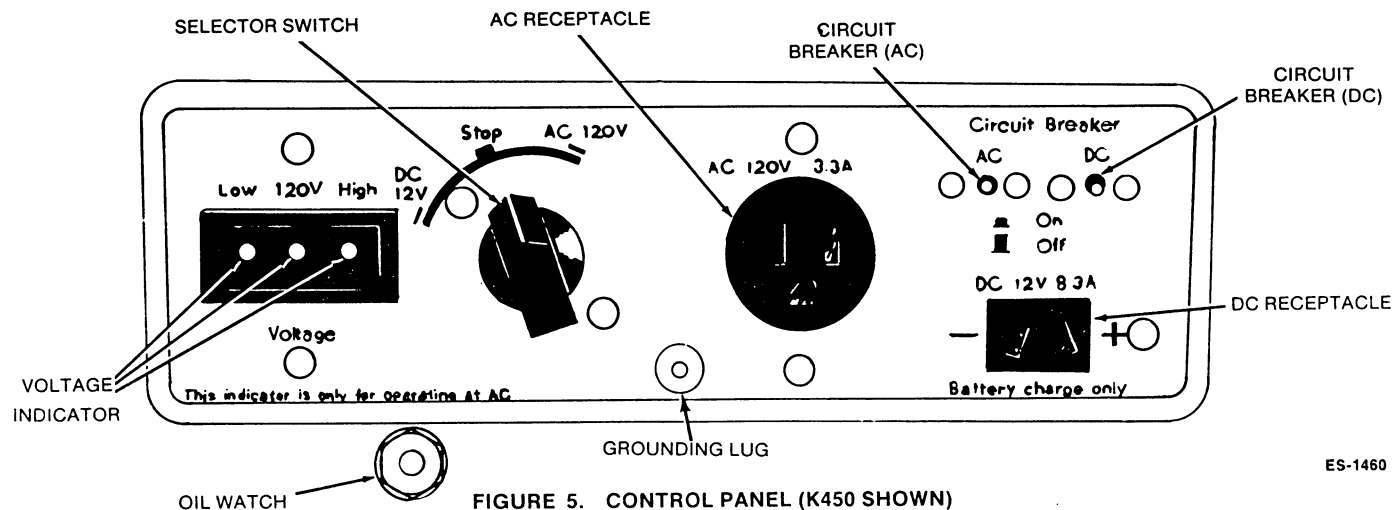


MODEL K450



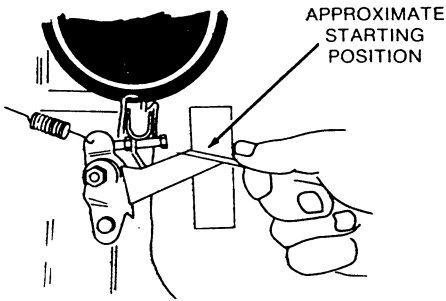
MODEL K1000

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**FIGURE 4. CLOSING THE CHOKE****FIGURE 5. CONTROL PANEL (K450 SHOWN)**

ES-1460

4. **Model K1000:** Set the Speed Control Lever about midway between IDLE SPEED and OPERATING. See Figure 6.



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**FIGURE 6. SPEED CONTROL LEVER POSITION FOR STARTING (K1000)**

5. With one hand on the generator set to steady it during cranking, grip the recoil starter handle and pull out smoothly and quickly. Repeat as necessary.

**If the generator set stops and it has fuel, check the engine oil level before attempting to restart. K1000 only: If oil watch flashes during cranking, the oil level is low (add oil as described under "Pre-Starting Checks"). Figure 5 shows an oil watch indicator.**

6. As engine warms up, gradually open the choke until it is completely open. Let the generator set run a few minutes without load to warm up the engine.

The 120 V voltage indicator lamp on the control panel should light. If the LOW or HIGH lamp lights, adjust engine speed as described in the **ADJUSTMENTS** section before adding loads.

#### **WARNING**

**The muffler can cause serious burns when the engine is running or right after the engine has run. Do not touch.**

### **ADDING LOADS**

Follow the appropriate procedure for either AC loads or DC loads. Do not use AC and DC power supplies at the same time.

#### **Adding AC Loads**

1. Note the rated output of the generator set (from either nameplate or from **SPECIFICATIONS**).
2. Check the load rating of the items you plan to connect to the generator set. Table 1 lists typical wattages for common appliances and tools.
3. Add the wattages of the items you want to operate and make sure the total wattage is not more than the generator set rated output. Note the examples following.

*Example 1: For a K450 model with a 400-watt rated output, you wish to operate a sump pump and small light. Since the sump pump uses 350 watts (from Table 1), there is 50 watts for lighting (would probably use 40-watt light).*

*Example 2: For a K1000 model with an 800-watt rated output, you wish to operate a water pump (550 watts) and a trimmer (500 watts). Since the total is 1050 watts, you can not operate both items at the same time.*

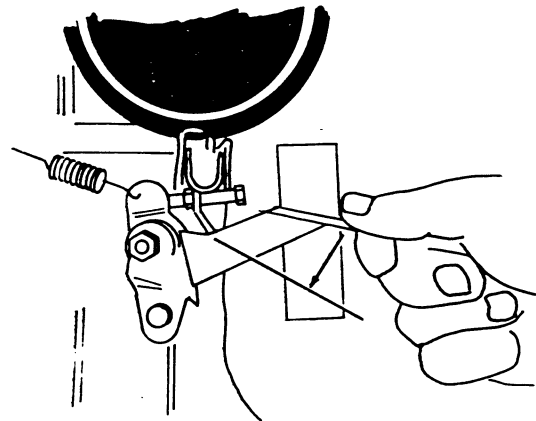
**TABLE 1. TYPICAL WATTAGE REQUIREMENTS**

<b>Electrical Equipment</b>	<b>Typical Running Watts*</b>
Drill (3/8 in.)	400
Trimmer (12 in. heavy duty)	500
Electric Water Pump	550
Sump Pump	350
TV (B & W)	60
TV (Color)	200
Refrigerator	600

\*See text for typical starting watts of motor loads.

*If a motor load and another load total very close to the generator set rating, Onan recommends starting the motor load first. Motors consume much more current during starting than running (some as much as three times running load).*

4. **Model K1000:** Move the Speed Control Lever to OPERATING. See Figure 7.



FS-1541

**FIGURE 7. SPEED CONTROL LEVER OPERATION POSITION (K1000)**



5. Connect the AC load to the receptacle(s) on the control panel. Make sure the cord and plug connector have ground terminals.

**WARNING** *Cord and plug equipment with a ground terminal can provide additional protection against electrical shock which might cause serious personal injury or death.*

Do not use DC receptacles while using AC power.

### Adding DC Loads

Connect the DC loads to the DC receptacles on the control panel. Make sure load wires + and - agree with the polarities at the receptacle on the control panel. Maximum DC output is 8.3 amperes, 12 volts, or 100 watts.

**WARNING** *Batteries emit a highly-explosive gas that can be ignited by electrical arcing or by smoking. For battery charging, make sure first to connect the cables to the battery before connecting the cables to the generator set. This will prevent any arcing at the battery which can cause an explosion. When battery charging is complete, also make sure first to remove the cables at the generator set before removing the cables from the battery.*

Do not use AC receptacles while using DC power.

## CIRCUIT BREAKERS

If either a DC or an AC circuit breaker opens, check to see if the generator set is overloaded. If so, remove some load from the generator set. Then reset the circuit breaker by pushing in the indicator (reset after a minimum of ten seconds of tripping).

## OPERATION INDICATORS

### Voltage Indicator Lamps

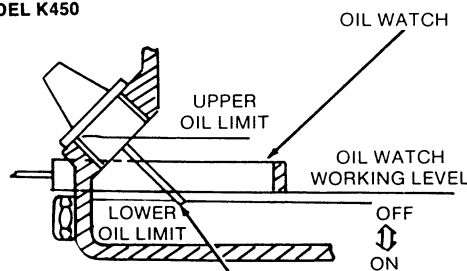
LOW, 120 V, and HIGH indicator lamps on the control panel indicate output voltage. If either lamp other than the 120 V lamp lights, adjust engine speed as described in the *ADJUSTMENTS* section.

### Oil Watch Indicator

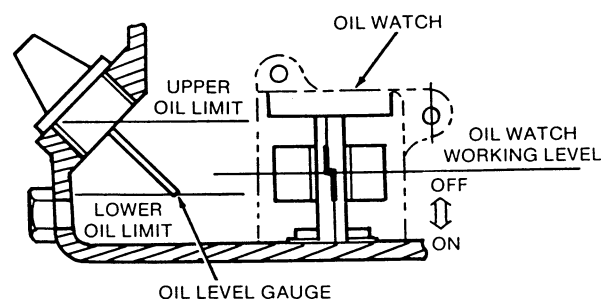
The oil watch stops the generator set if the engine oil level reaches the low working level of the oil watch (oil watch indicator lights while engine is stopping). For the Model K1000, the oil watch also flashes during cranking if the oil level is low.

**CAUTION** *Failure to add oil increases the risk of engine damage from a low oil level if you can manage to restart generator set with a low-oil condition. Add oil before attempting to start.*

MODEL K450



MODEL K1000

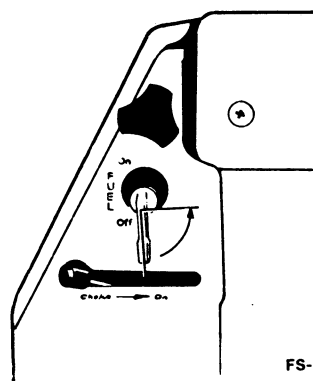


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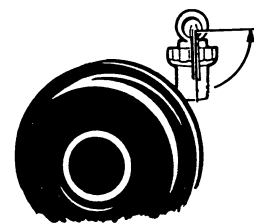
FIGURE 8. OIL WATCH

## STOPPING

1. Remove all loads from the generator set.
2. **Model K1000:** Set the Speed Control Lever to IDLE SPEED.
3. Let the generator set run at least a few minutes without load to allow for cool-down of the engine.
4. Close the fuel valve (Figure 9).



MODEL K450



MODEL K1000

FIGURE 9. CLOSING FUEL VALVE

5. Move the Selector Switch to STOP. See Figure 5.

## HIGH/LOW OPERATING TEMPERATURES

The generator will operate satisfactorily in both high and low temperatures. Use the oil recommended in the *MAINTENANCE* section for the expected temperature conditions.

### High Operating Temperatures

1. See that nothing obstructs airflow to and from the generator.
2. Keep the engine cooling fins clean. Air housings should be properly installed and undamaged.

### Low Operating Temperatures

1. Use fresh gasoline and keep the tank filled to avoid condensation.
2. Keep the spark plug clean and correctly gapped.

## EXTREMELY DUSTY/DIRTY CONDITIONS

Observe the following when operating the generator set in extremely dusty or dirty conditions:

1. Keep the generator set clean, and do not allow dust and dirt to accumulate.
2. Clean the air cleaner more often than shown in the maintenance schedule.
3. Keep oil and gasoline in dust-tight containers suitable for storage of fuels.

## LONG-TERM STORAGE

For storage longer than 30 days, Onan recommends the following procedure.

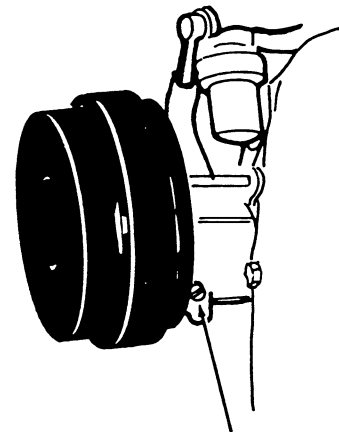
1. Run the generator set until it has reached warm operating temperatures.
2. Close the fuel valve and stop the generator set.
3. Change the oil while the engine is still warm.

**WARNING** *Hot oil can cause serious burns if spilled or splashed on the skin. Keep fingers and hands clear when removing the oil drain plug, and wear protective clothing.*

4. Let the engine cool. Then drain the gasoline from the fuel tank into a container designed for fuel usage.

**WARNING** *Ignition of fuel might cause serious personal injury or death. Do not permit any flame, cigarette, or other ignition source near the fuel system. Do not store generator set and fuel together. Proceed with care for any of the steps involving the fuel system!*

5. Drain gasoline from the carburetor float bowl by removing the drain screw (make sure fuel valve is closed). Figure 10 shows a typical carburetor. Re-install the drain screw when finished.
6. Clean the fuel valve sediment bowl and screen.
7. Slowly pull the recoil handle until you feel heavy resistance. The engine is now in the compression stroke.
8. Cover the generator set and store it in a dry, protected area.



CARBURETOR  
DRAIN SCREW

FS-1542

FIGURE 10. LOCATION OF CARBURETOR  
DRAIN SCREW

# Maintenance

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Regularly-scheduled maintenance is the key to lower operator costs and longer service life. Use the time intervals shown in the schedule as a guide for regular maintenance. However, actual operating conditions

should determine the schedule. Intervals must be reduced when operating in very dusty or dirty conditions or in hot and cold temperature extremes. Instructions for the maintenance items follow the schedule.

## MAINTENANCE SCHEDULE

Maintenance Item	Interval				
	8 Hours (every day)	25 Hours (every week)	50 Hours (every week)	200 Hours (every month)	500 Hours
Clean generator set & check for loose parts	x <sup>1</sup>				
Check engine oil	x				
Clean air cleaner element		x <sup>2</sup>			
Change engine oil	(first 10 hours)		x <sup>2</sup>		
Clean spark plug			x		
Clean fuel filter				x	
Check spark plug gap				x	
Remove carbon deposits from cylinder head					x <sup>3</sup>
Clean carburetor and tank					x
Adjust intake and exhaust valves					x <sup>3</sup>
Overhaul					x <sup>3</sup>

Change fuel pipe indicator every year (where applicable).

x<sup>1</sup> - Check for oil, fuel, and exhaust leaks. Make any repairs before operating.

x<sup>2</sup> - Perform more often for extremely dusty conditions.

x<sup>3</sup> - Have Onan service representative perform.

## CHANGE ENGINE OIL

Change the engine oil only after the engine has run and is still warm. This ensure most particulates in the oil are still suspended and will leave the crankcase with the oil.

The engine oil drain plug is at the base of the engine (Figure 11). Remove carefully to drain the oil and catch the old oil in a container. Re-install the drain plug when all the oil is drained.

**WARNING** Hot oil can cause serious burns if spilled or splashed on skin. Keep fingers and hands clear when removing oil drain plug, and wear protective clothing.

Use oils with the API (American Petroleum Institute) designation SE or SF class. Note the following temperature requirements.

Above 40°F (4.5°C)	SAE 30
Below 40°F (4.5°C)	SAE 20

Add oil to the engine until it reaches the top of the oil port (Figure 11). The *SPECIFICATIONS* section lists oil capacities.

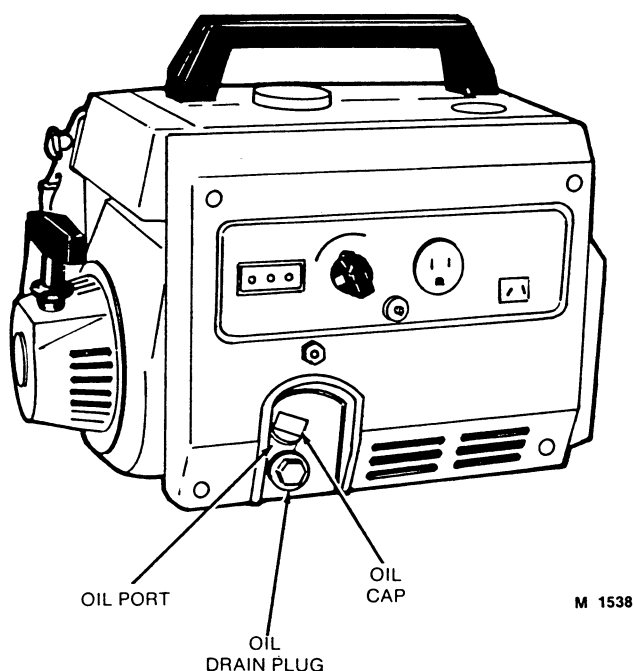


FIGURE 11. LOCATION OF OIL CAP, OIL PORT, AND DRAIN PLUG

## ENGINE FUEL SYSTEM

### Fuel Filter

Periodically clean the fuel filter as follows:

1. Turn the fuel valve closed.
2. Turn the sediment bowl off the fuel valve. Be careful not to spill gasoline.

**WARNING** Ignition of fuel might cause serious personal injury or death. Do not permit any flame, cigarette, or other ignition source near the fuel system. Proceed with care for any steps involving the fuel system!

3. Remove the screen and clean out any dirt and particulate.
4. Re-install the screen and sediment bowl.

### Drain Carburetor

1. Turn the fuel valve closed.
2. Remove the carburetor float bowl drain screw and run gasoline into a container designed for gasoline usage. Figure 10 of *OPERATION* section shows drain location.

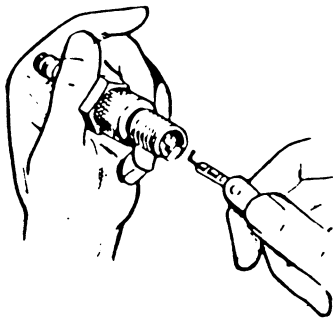
**WARNING** Ignition of fuel might cause serious personal injury or death. Do not permit any flame, cigarette, or other ignition source near the fuel system. Proceed with care for any steps involving the fuel system!

3. Re-install carburetor bowl drain screw.

## SPARK PLUG

A badly-fouled spark plug will cause misfiring, poor operation, poor economy, or stopping with a load applied. Remove the spark plug and clean any carbon and deposits with a wire brush. Adjust the plug gap after cleaning (Figure 12). Plug gaps are listed in the *SPECIFICATIONS* section.

**CAUTION** Do not clean spark plug by sand-blasting. Deposits remaining on the plug can cause premature engine wear.



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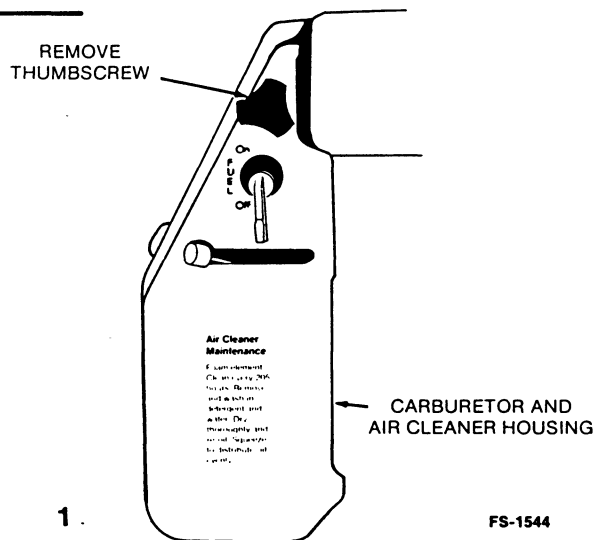
FIGURE 12. CHECKING SPARK PLUG GAP

3. Wash the foam element in detergent and water. Dry thoroughly when finished.
4. Re-oil element and squeeze out any excess oil.
5. Clean out the air cleaner housing and cover.
6. Re-install the element into the housing and put on the air cleaner cover.

## AIR CLEANER

1. Remove the air cleaner cover. See Figure 13.
2. Take out the foam element.

### Model K450



### Model K1000

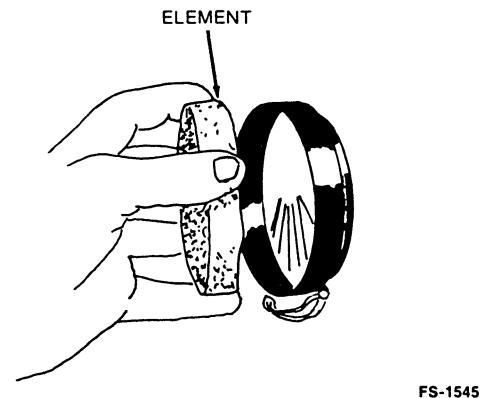
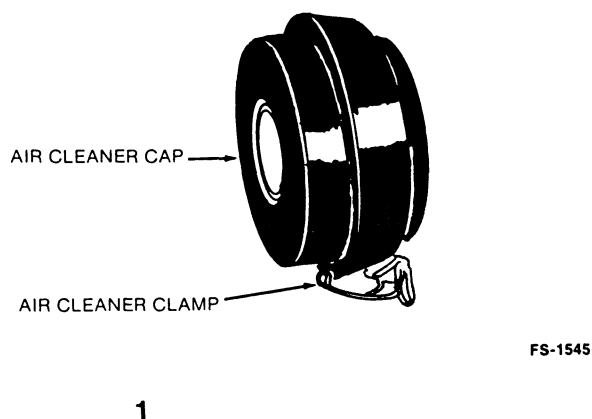


FIGURE 13. REMOVING AIR CLEANER ELEMENT

# Adjustments

## OUTPUT VOLTAGE ADJUSTMENT

If any of the voltage indicator lamps other than the 120 V lamp lights on the control panel (Figure 5), adjust engine speed. Use the procedure following for the appropriate model.

### Speed Adjustment - K450

Start the generator set and allow it to warm up a few minutes (have Selector Switch at AC 120 V). Adjust the speed screw as shown in Figure 14. Adjust in or out until the 120 V lamp lights and the other lamp goes out. Stop the generator set when finished by moving the Selector Switch to STOP.

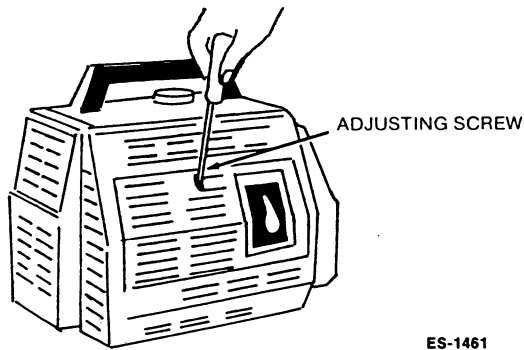


FIGURE 14. ADJUSTMENT SCREW FOR K450 VOLTAGE ADJUSTMENT

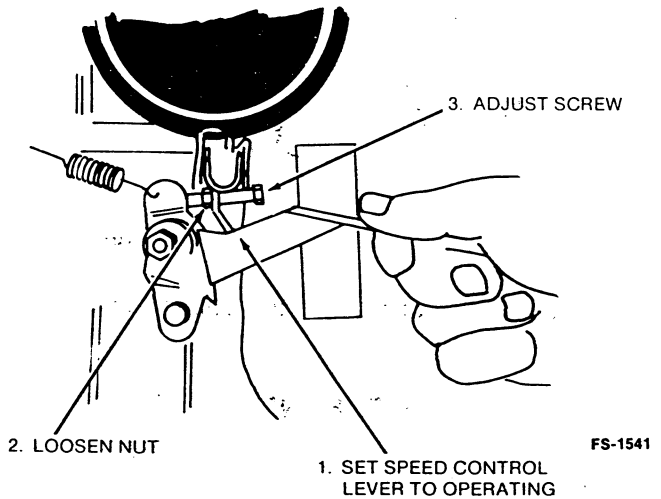


FIGURE 15. MODEL K1000 SPEED ADJUSTMENT

4. With a screwdriver, turn the screw in (clockwise) or out (counterclockwise) until the 120 V lamp lights and the other lamp goes out.
5. While holding the screwdriver with one hand, tighten the nut. Be careful not to change adjustment.
6. Move the Speed Control Lever to IDLE SPEED.
7. Stop the generator set by moving the Selector Switch to STOP.

### Speed Adjustment - K1000

1. Start the generator set and allow it to warm up a few minutes (have Selector Switch at AC 120 V).
2. Set the Speed Control Lever to OPERATING (Figure 15).
3. Loosen the nut securing the adjustment screw.

**WARNING** A hot muffler can cause serious burns. Be careful not to touch muffler when making this adjustment.

## MANUFACTURER'S LIMITED WARRANTY

### K Series Portable Generator U.S. AND CANADA

Onan extends to the original purchaser of goods for use, the following warranty covering goods manufactured or supplied by Onan, subject to the qualifications indicated.

THERE IS NO OTHER EXPRESS WARRANTY.

IMPLIED WARRANTIES INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO PERIODS OF WARRANTY SET FORTH BELOW AND TO THE EXTENT PERMITTED BY LAW, ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED.

IN NO EVENT IS ONAN LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

**Note:** Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply in every instance.

- (1) Onan warrants to original purchaser for the periods set forth below that goods manufactured or supplied by it will be free from defects in workmanship and material, provided such goods are installed, operated, and maintained in accordance with Onan's written instructions.

#### PRODUCT APPLICATION

- ☐ Goods used in personal, family and household applications.
- ☐ Goods used in commercial-industrial applications.
- ☐ Repair or replacement parts.

#### PERIOD OF WARRANTY

One (1) year from date of purchase.  
Ninety (90) days from date of purchase  
Ninety (90) days from date of purchase, excludes labor.

- (2) Onan's sole liability and Purchaser's sole remedy for a failure of goods under this warranty and for any and all other claims arising out of the purchase and use of the goods, including negligence on the part of the manufacturer, shall be limited to the repair of the product by the repair or replacement, at Onan's option, of parts that do not conform to this warranty, provided that the product or parts are returned to Onan's factory at 1400 73rd Avenue NE, Minneapolis, Minnesota 55432, or to an Onan Authorized Distributor or its designated service representative, transportation prepaid.
- (3) All claims must be brought to the attention of Onan or an Authorized Distributor or its designated service representative within thirty (30) days after discovery that goods or parts fails to meet this warranty.
- (4) THIS WARRANTY SHALL NOT APPLY TO:
- a) Cost of maintenance, adjustments, installation and start-up.
  - b) Failures due to normal wear, accident, misuse, abuse, negligence or improper installation, or lack of reasonable and necessary maintenance.
  - c) Products which are altered or modified in manner not authorized by manufacturer in writing.
  - d) Failure of goods caused by defects in the system or application in which the goods are installed.
  - e) Telephone, telegraph, teletype or other communication expenses.
  - f) Living and travel expenses of persons performing service.
  - g) Rental equipment used while warranty repairs are being performed.
  - h) Overtime labor requested by purchaser.

No person is authorized to give any other warranties or to assume any other liabilities on Onan's behalf, unless made or assumed in writing by an officer of Onan, and no person is authorized to give any warranties or assume any other liability on behalf of Seller unless made or assumed in writing by Seller.

- (5) This warranty gives the user specific legal rights, and the user may also have other rights which vary from state to state.

# Important

Here is your Operator's Manual and other important information. Please save for future reference.

**For Models —**

**K450**  
**(0.4KH-1P/1A)**

**K1000**  
**(1.0KJ-1P/1A)**

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