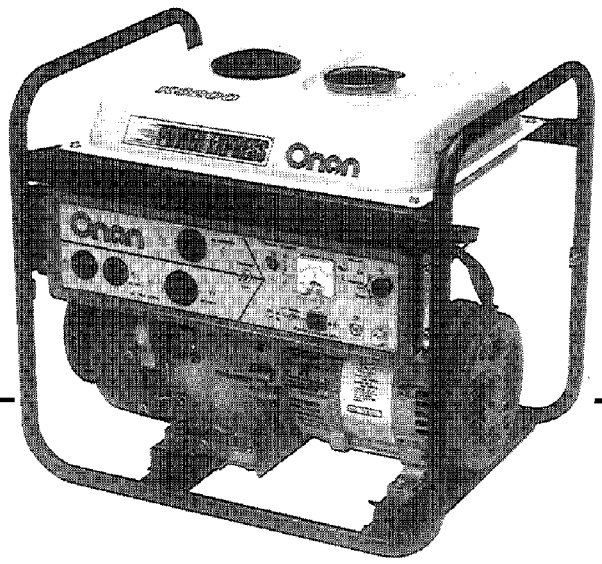
Onan

Service Manual

K3200
K3500

GenSets

- **Portable Generator**



K3200 GenSet
Onan A-0990 C-3881A

981-0509
2-90
Printed in U.S.A.

Safety Precautions

■ 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 greases 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.

■ FIRE PREVENTION

(1) Always stop the engine before refueling.
- Do not spill fuel.
- Wipe away any spilled gasoline and make sure its residue has evaporated before restarting.
- Do not handle gasoline while smoking.
- Pay careful attention to nearby fires.

(2) Do not place inflammable items (oil, fats, plastics paper, wood etc.) around the generator.
(3) Do not tilt or move a running generator or it may overturn.
(4) Do not operate the generator covered with a tarp or enclosed with box or other object.
(5) Do not operate the generator indoors.
(6) Keep running generators one meter or more away from buildings and other installations.
(7) Do not cover the generator with a tarp after operation until it is cooled.

■ EXHAUST GAS

Because exhaust gas is toxic, special attention must be paid to prevent persons and animals from potential ill effects.
(1) Do not operate the generator in poorly ventilated places such as rooms, warehouses, tunnels, and holds.
(2) Do not use the generator in a poorly ventilated place such as one surrounded by buildings or other objects which can prevent proper dispersion of exhaust gas.
(3) Do not point the exhaust outlets toward persons or houses when the generator is running.

■ HANDLING ELECTRICITY

Electricity is invisible. Lack of care may result in serious accidents. Pay careful attention to the following points.
(1) Do not use the generator in the rain.
The generator and electrical loads will be harmed.
Handling the loads with wet hands is dangerous due to electric shocks.
(2) Do not connect the generator to house wiring, since wiring, loads and generator can be damaged and leaks may occur.

■ OTHER PRECAUTIONS

(1) Throughly read the operating instructions and familiarize yourself with proper operating and handling procedures.
(2) Mount the machine on a level surface.
(3) Stop the engine before checking, servicing, and cleaning.
Do not splash water directly on the generator when washing with water.
(4) If abnormal sounds, odors, or vibrations occur during operation, immediately stop the engine and call your Onan dealer.
(5) Do not touch hot parts, such as a muffler, during and just after operation.
Let the generator become cool before checking and servicing.
(6) Do not operate the generator with its cover removed. Hands or feet may be injured or wire disconnections and other troubles may occur.
(7) Make sure all operators have read the operating instructions and are familiar with all operating, handling, and safety procedures.

TO THE READER

This Workshop Manual has been prepared to provide service personnel with information on the mechanism, service and maintenance of **Onan Generator K3200 and K3500.** It is divided into two parts, "Mechanism" and "Disassembling and Servicing."

■ **Mechanism**

Information on construction and functions are included for each generator section. This part should be understood before proceeding with troubleshooting, disassembling and servicing.

■ **Disassembling and Servicing**

Under the heading "General" comes general precautions, check and maintenance and special tools. For each generator section, there are troubleshooting, servicing, specification lists, checking and adjusting, disassembling and assembling, and servicing which cover procedures, precautions, factory specifications and allowable limits.

All information, illustrations and specifications contained in this manual are based on the latest product information available at the time of publication. The right is reserved to make changes in all information at any time without notice.

Particularly important information is distinguished in this manual by the following notations:

DANGER ⚠ This symbol if used warns of immediate hazards which will result in severe personal injury or death.

WARNING ⚠ This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

CAUTION ⚠ This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

CONTENTS

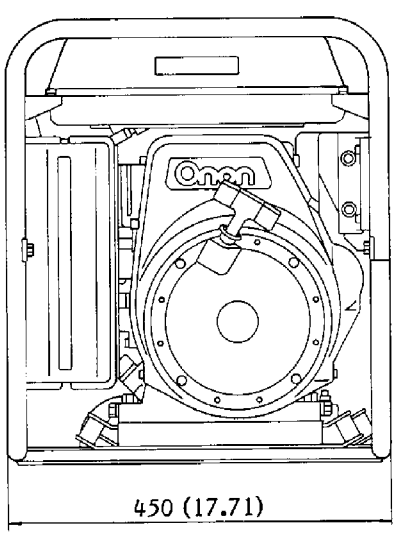
MECHANISM

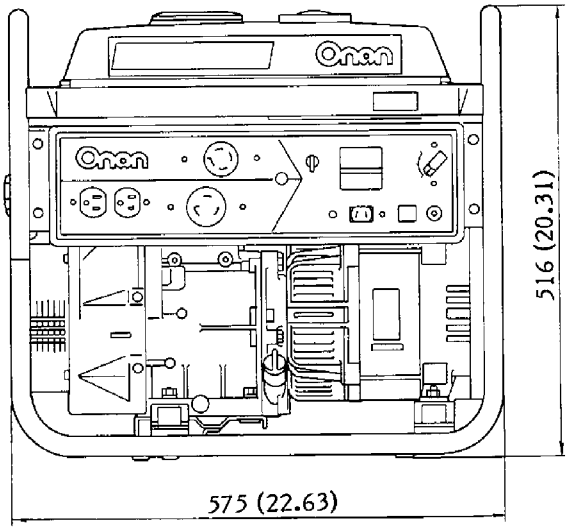
DISASSEMBLING AND SERVICING

SPECIFICATIONS

Item		Unit	K3200	K3500
Dimensions	Overall length	mm (in.)	575 (22.63)	
	Overall width	mm (in.)	450 (17.71)	
	Overall height	mm (in.)	516 (20.31)	
	Dry weight	Kg (lbs.)	60 (132.1)	62 (136.71)
Engine	Type	———	Air-cooled 4-cycle gasoline engine	
	Model	———	GS280-2DG-A3-B4	
	Number of cylinders	———	1	
	Bore x stroke	mm (in.)	73 x 66 (2.87 x 2.60)	
	Total displacement	cc (Cu. in.)	276 (16.84)	
	Rated output	KW, (HP)/rpm	3.31 (4.5)	
	Maximum output	KW, (HP)	5.14 (7.0)	
	Maximum torque	N.m,Kgf.m,ft-lbs/rpm	29.4, 3.0, 21.7/2600	
	Compression ratio	———	6.15	
	Ignition system	———	No contact magneto	
	Spark plug	———	BPR4HS (NGK), W14FR-U (Denso)	
	Carburetor	———	Horizontal type, butterfly valve	
	Air cleaner	———	Semi - Dry type	
	Governor	———	Centrifugal flywheel type	
	Starting system	———	Recoil starter	
	Engine stop type	———	Shorting ignition primary	
	Lubricating system	———	Splash type	
	Engine oil type	———	API SE, SF class (Refer to S-3)	
	Engine oil capacity	l(U.S.qts, Imp.qts)	0.9 (0.95, 0.79)	
	Fuel type	———	Regular automobile gasoline	
	Fuel tank capacity	l(U.S.qts, Imp.qts)	12.8 (13.52, 11.23)	
	Capacity in rated output	Hr	Approx. 6.5	Approx.6.0
Generator unit	Generating system	———	Rating-field type	
	Excitation	———	Static self-exciting	
	Voltage regulation system	———	Automatic	
	Number of phase	Phase	1	
	Frequency	Hz	60	
	Maximum output	KVA	3.2	3.5
	Rated output	KVA	2.5	3.0
	Efficiency	%	77	
	AC output	V	120/240	
	AC rated current	A	20.8/10.4	25/12.5
	DC output	W	120	
	DC voltage x current	V x A	12 x 10	
	Power factor	%	100	
	Overcurrent protection	———	AC Circuit breaker, DC circuit protector	
	AC breaker capacity	A	11.5	14
	DC protector capacity	A	20	
	Indicator	———	Pilot lamp (standard), V-F indictor (X type)	
	Insulation class	———	B	

DIMENSIONS





Unit: mm (in.)