

KIPOR[®]

KIPOR POWER

OPERATION MANUAL

PLEASE READ THIS MANUAL CAREFULLY.
IT CONTAINS IMPORTANT SAFETY INFORMATION.

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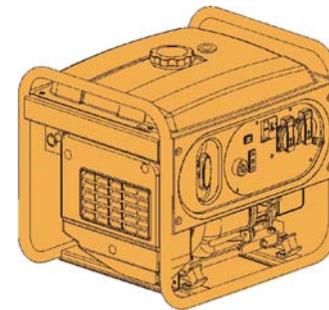
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**DIGITAL
GENERATOR**

IG3000E

EC Declaration of Conformity
According to EU Machinery-Directive 98/37/EC

We, Wuxi Kipor Power Co., Ltd. (Add: Beside Jingyi Rd, Third-stage Development Section of Wangzhuang Industry Area, Wuxi High & New Technology Industry Development Zone.)

declare under our sole responsibility that the product digital gasoline generator set: IG3000E, to which this declaration relates correspond to the relevant basic safety and health requirements of Directive:

- 98/37/EC (Machinery-Directive),
- 2006/95/EC(LVD-Directive),
- 89/336/EC (EMC-Directive), and
- 2000/14/EC (noise directive) incl. modifications.

For the relevant implementation of the safety and health requirements mentioned in the Directives, the following standards and/or technical specification(s) have been respected:

EN 55012: 2002/+A1:2005,
EN 12601: 2001,
EN ISO 3744, ISO 11094.

measured sound power level **94.0dB(A)**
guaranteed sound power level **95.0dB(A)**

Conformity assessment method to annex VII Directive 2000/14/EC

Maintenance of technical documentation:

Wuxi Kipor Power Co., Ltd.

Signature: Shuoming Huang

Name: Shuoming Huang

Quality Guarantee Manager

PREFACE

Thank you for purchasing our generators.

This manual covers operation and maintenance of the IG3000E generator.

All information in this publication is based on the latest product information available at the time of approval for printing.

We reserve the right to make changes at any time without notice and without incurring any obligation.

No part of this publication may be reproduced without written permission.

This manual should be considered a permanent part of the generator and should remain with it if it is resold.

Pay special attention to statements preceded by the following words;



Pay special attention to statements preceded by the following words;

Failure to properly follow these precautions can result in property damage, serious injury or DEATH!

Read all labels and the owner's manual before operating this generator.

Operate only in well ventilated areas. Exhaust gas contains poisonous carbon monoxide, and can be deadly. Always stop engine before refueling. Wait 5 minutes before restarting.

Check for spilled fuel or leaks. Clean and/or repair before use.

Keep any sources of ignition away from fuel tank, at all times.



Indicates a strong possibility of severe personal injury or death if instructions are not followed.



Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

If a problem should arise, or if you have any questions about the generator, consult an authorized dealer.



The generators are designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the generator. Failure to do so could result in personal injury or equipment damage.

■ The illustration may vary according to the type.

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2. Modified coefficient table of ambient condition power

The conditions of generator rated output:

Altitude: 0 m Ambient temperature: 25°C Relative humidity: 30%

Ambient modified coefficient: C (Relative humidity 30%)

Altitude (m)	Ambient temperature (°C)				
	25	30	35	40	45
0	1	0.98	0.96	0.93	0.90
500	0.93	0.91	0.89	0.87	0.84
1000	0.87	0.85	0.82	0.80	0.78
2000	0.75	0.73	0.71	0.69	0.66
3000	0.64	0.62	0.6	0.58	0.56
4000	0.54	0.52	0.5	0.48	0.46

Note: When the relative humidity is 60%, the modified coefficient is C-0.01

When the relative humidity is 80%, the modified coefficient is C-0.02

When the relative humidity is 90%, the modified coefficient is C-0.03

When the relative humidity is 100%, the modified coefficient is C-0.04

Counting example:

When the rated power of generator is $P_N = 5KW$, altitude is 1000m, ambient temperature is 35°C, relative humidity is 80%, the rated power of generator is:

$$P = P_N \times (C - 0.02) = 5 \times (0.82 - 0.02) = 4KW$$

12. APPENDIX

1. The choice of the electric cable

The choice of the electric cable depends on the allowable current of the cable and the distance between the load and the generator. And the cable section should be big enough.

If the current in the cable is bigger than the allowable current, it will become over hot and the cable will be burnt. If the cable is long and thin, the input voltage of the electric appliance will be not enough, causing that the generator doesn't start.

In the following formula, you can calculate the value of the potential "e".

$$\text{Potential (v)} = \frac{1}{58} \times \frac{\text{Length}}{\text{Section area}} \times \text{Current (A)} \times \sqrt{3}$$

The relations among of the allowable current, and length, section of the Insulating cable (single core, multi-core) are as follow:

(Presume that the use voltage is 220V and the potential is below 10V.

The application of the single-core insulating cable section mm²

Length beneath Current	50m	75m	100m	125m	150m	200m
50A	8	14	22	22	30	38
100A	22	30	38	50	50	60
200A	60	60	60	80	100	125
300A	100	100	100	125	150	200

The application of the multi-core insulating cable section mm²

Length beneath Current	50m	75m	100m	125m	150m	200m
50A	14	14	22	22	30	38
100A	38	38	38	50	50	60
200A	38×2	38×2	38×2	50×2	50×2	50×2
300A	60×2	60×2	60×2	60×2	80×2	100×2

1. SAFETY INSTRUCTIONS



Operate carefully and make sure users and others safety.

WARNING

- The generators are designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the generator. Failure to do so could result in personal injury or equipment damage.

WARNING

- Exhaust gas contains poisonous carbon monoxide. Never run the generator in an enclosed area. Be sure to provide adequate ventilation.

WARNING

- The muffler becomes very hot during operation and remains hot for a while after stopping the engine. Be careful not to touch the muffler while it is hot. Let the engine cool before storing the generator indoors.
- The engine exhaust system will be heated during operation and remain hot immediately after stopping the engine. To prevent scalding, pay attention to the warning marks attached to the generator.

WARNING

- Gasoline is extremely flammable and explosive under certain conditions. Refuel in a well ventilated area with the engine stopped.
- Keep away from cigarette, smoke and sparks when refilling the generator, Always refuel in a well-ventilated location.
- Wipe up spilled gasoline at once.
- Restrict application of generator in high-Hazard risk to causing fire area.

⚠ WARNING

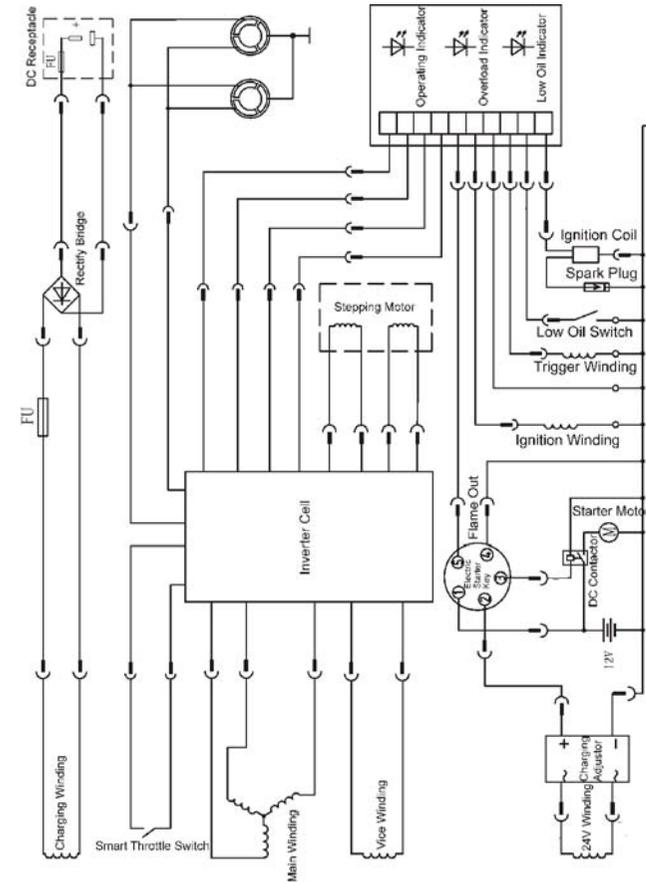
■ Connections for standby power to a building's electrical system must be made by a qualified electrician and must comply with all applicable laws and electrical codes. Improper connections can allow electrical current from the generator to back feed into the utility lines. Such back feed may electrocute utility company workers or others who contact the lines during a power outage, and when utility power is restored, the generator may explode, burn, or cause fires in the building's electrical system.

⚠ WARNING

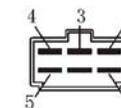
- Always make a pre-operation inspection (page 9) before you start the engine. You may prevent an accident or equipment damage.
- Place the generator at least 1m(3ft) away from buildings or other equipment during operation.
- Operate the generator on a level surface. If the generator is tilted, fuel spillage may result.
- Know how to stop the generator quickly and understand operation of all the controls. Never permit anyone to operate the generator without proper instructions.
- Keep children and pets away from the generator when it is in operation.
- Keep away from rotating parts while the generator is running.
- The generator is a potential source of electrical shocks when misused; do not operate with wet hands.
- Do not operate the generator in rain or snow and do not let it get wet.

11. ELECTRICAL WIRING DIAGRAM

IG3000E Electrical wiring diagram



	①	②	③	④	⑤
OFF				●	●
ON	●	●			
START	●	●	●		



10. SPECIFICATIONS

SPECIFICATIONS

Model	IG3000E		
Rated frequency (Hz)	50	60	60
Rated voltage (V)	230	120	240
Rated current (A)	12.2	23.3	11.7
Rated speed (r/min)	3600		
Rated output (kVA)	2.8		
Max output (kVA)	3.0		

DC output

DC voltage	12V-5.0A
Circuit breaker	With
Phase number	Single phase

Engine

Model Type	KG205GX _i
Type	Signal cylinder, air cooled, 4-stroke, cylinder tilting, overhead valve,
Displacement (Bore×Stroke)	196ml(68×54mm)
Compression ratio	8.5:1
Rated power [kW/(r/min)]	4.0/3600
Rated rotation speed (rpm)	3600
Ignition system	T.C.I
Spark plug	WR7DC
Starting system	Recoil starter, Electric starter
Fuel type	Automotive unleaded gasoline
Fuel consumption (g /kW.h)	395
Lube oil	SAE 10W30 (above CC grade)

Fuel tank capacity (L)	8.7
Continuous running time (hr) (at rated output)	4.7
Noise level(zero load~ full load) [dB(A)/7m]	68-78
Overall dimension (L×W×H) [mm(in)]	491×400×425 (27.01×16.73×19.88)
Dry weight [kg(lbs)]	40

2. COMPONENT IDENTIFICATION

2.1 Outline drawing

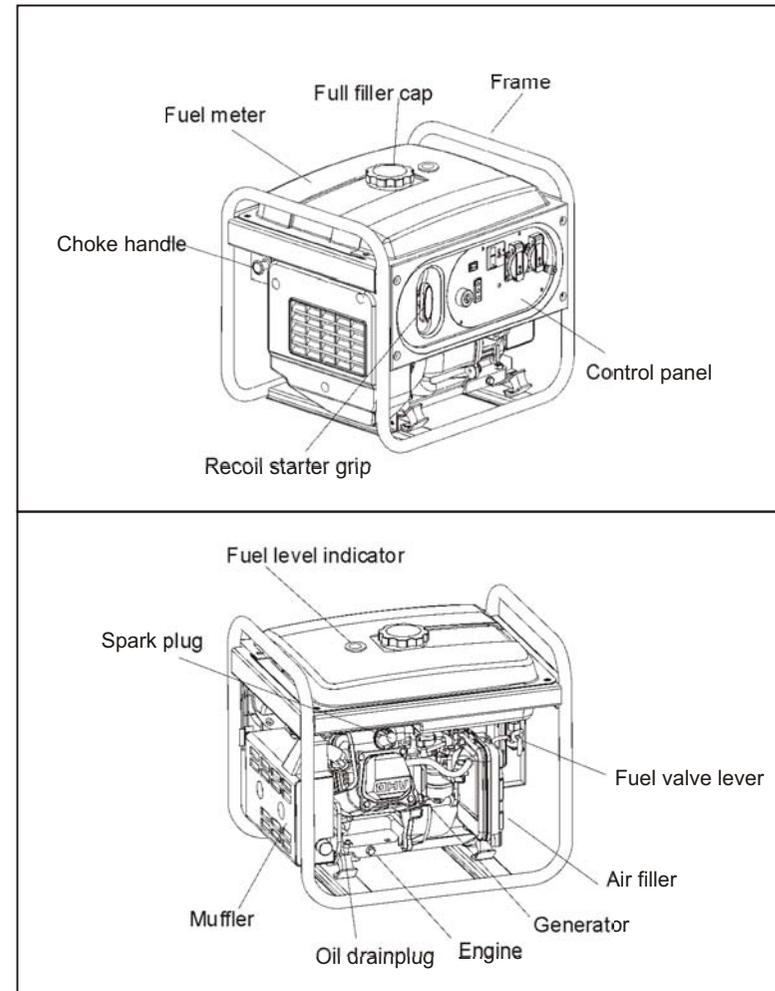


Fig. 1 Outline drawing

2.2 Control panel

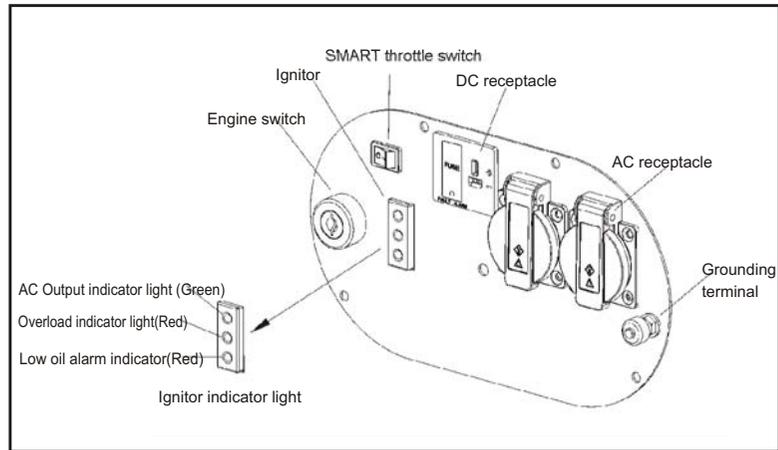


Fig. 2 Control panel

2.3 Smart throttle

Engine speed is kept at idle automatically when the electrical appliance is disconnected and it returns to the proper speed to power of the electrical load when electrical appliance is connected. This position is recommended to minimize the fuel consumption while in operation.

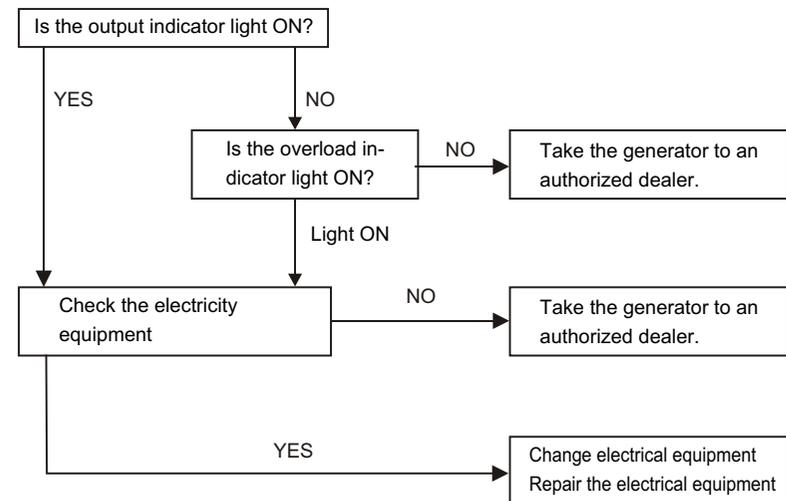
⚠ WARNING

- Smart throttle system does not operate effectively, if the electrical appliance requires big momentary electric power.
- When high electrical loads are connected simultaneously, turn the Smart-throttle switch to the OFF position to reduce voltage vibration.
- In DC operation, turn the Smart-throttle switch to the OFF position.

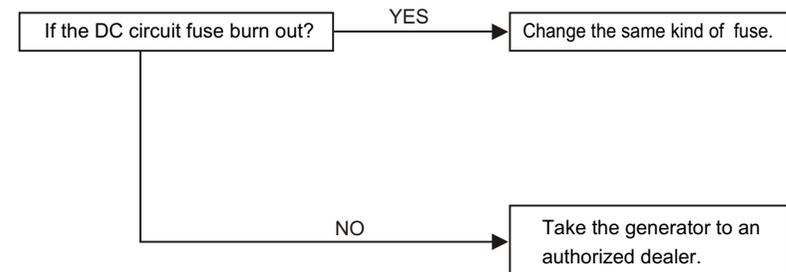
OFF:

Smart-throttle system does not operate. Engine speed is kept at high-speed level.

Appliance does not operate:

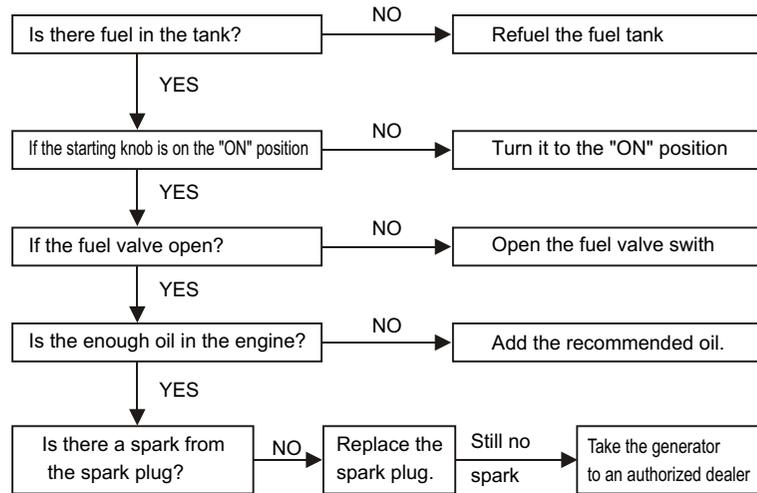


No electricity at the DC receptacle:



9. TROUBLESHOOTING

When the engine will not start:



WARNING

- Be sure there is no spilled fuel around the spark plug. Spilled fuel may ignite.

Is the fuel reaching the carburetor?

If the engine still does not start, take the generator to an authorized dealer.

To check:

- Remove the spark plug cap and clean any dirt from around the spark plug.
- Remove the spark plug and install the spark plug in the plug cap.
- Set the plug side electrode on the cylinder head bolt to ground.
- Pull the recoil starter; sparks should jump across the gap.

To check:

- Turn off the fuel valve and remove the drain screw.
- Turn on the fuel valve. Fuel should flow from the fuel tank.

3. PRE-OPERATION CHECK

CAUTION

- Be sure to check the generator on a level surface with the engine stopped.

3.1 Check the engine oil level

NOTE

- Using nondetergent oil or 2-stroke engine oil could shorten the engine's service life.
- Use high-detergent, premium quality 4-stroke engine oil, certified to meet or exceed U.S.automobile manufacturer's requirements for API Service Classification SG, SF. SAE10W-30 is recommended by us.
- Select the appropriate viscosity for the average temperature in your area.

SAE Viscosity Grade as follows:

Ambient Temperature	Oil Number
-25°C-30°C	10W-30
-15°C-40°C	15W-40

- Remove the oil filler cap, and wipe the dipstick with a clean rag. Check the oil level by inserting the dipstick in the filler hole without screwing it in. (See Fig.3)

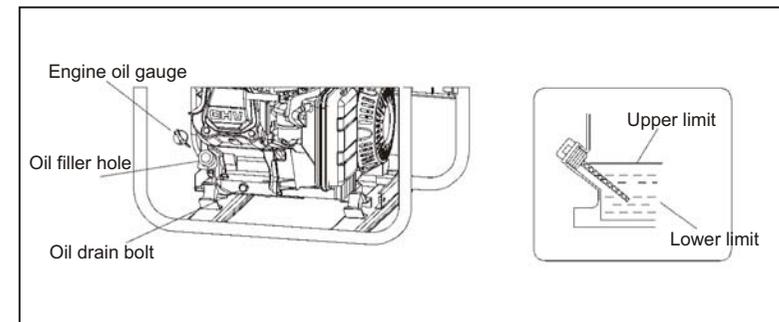


Fig.3 Oil level diagram

- Please add the recommended oil when the oil level is low than the dipstick bottom. The engine may be damaged while running it at low oil level.

NOTE

■ The Low Oil Alarm System will automatically stop the engine before the oil level falls below the safe limit. However, to avoid the inconvenience of an unexpected shutdown, it is still advisable to visually inspect the oil level regularly.

3.2 Check the fuel level.

If the fuel level is low, refuel the fuel tank until the level as specified.

After refueling, tighten the fuel filler cap securely.

Use automotive Unleaded gasoline with a Research Octane Number of 91 or higher.

Unleaded gasoline produces fewer engine and spark plug deposits and extends exhaust system life.

WARNING

- Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.
- Gasoline is extremely flammable and is explosive under certain conditions.
- Refuel in a well-ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored.
- Do not overfill the fuel tank (there should be no fuel above the upper limit mark). After refueling, make sure the tank cap is closed properly and securely.
- Be careful not to spill fuel when refueling. Spilled fuel or fuel vapor may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.
- Avoid repeated or prolonged contact with skin or breathing of vapor. KEEP OUT OF REACH OF CHILDREN.

Fuel tank capacity: 8.7L

Gasoline containing alcohol

If you decide to use gasoline containing alcohol (gasohol), be sure it's octane rating is at least as high as that recommended by us. There are two types of gasohol : one containing ethanol, and the other containing methanol. Do not use gasohol that contains more than 10% ethanol. Do not use gasoline containing methanol (methyl or wood alcohol) that does not also contain cosolvents and corrosion inhibitors for methanol. Never use gasoline containing more than 5% methanol, even if it has cosolvents and corrosion inhibitors.

8. TRANSPORTING / STORAGE

To prevent fuel spillage when transporting or during temporary storage, the generator should be secured upright in its normal operating position, with the engine switch OFF.

The fuel cap vent lever is turned counterclockwise to the OFF position.

Allow the engine to cool well before turning the fuel cap vent lever to the OFF position.

WARNING

When transporting the generator:

- Do not overfill the tank (there should be no fuel in the filler neck).
- Do not operate the generator while it is on a vehicle. Take the generator off the vehicle and use it in a well ventilated place.
- Avoid a place exposed to direct sunlight when putting the generator on a vehicle. If the generator is left in an enclosed vehicle for many hours, high temperature inside the vehicle could cause fuel to vaporize resulting in a possible explosion.
- Do not drive on a rough road for an extended period with the generator on board. If you must transport the generator on board. If you must transport the generator on a rough road, drain the fuel from the generator beforehand.

Before storing the unit for an extended period:

1. Be sure the storage area is free of excessive humidity and dust.
2. Drain the fuel.

WARNING

- Gasoline is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in the area.

- a. Drain all gasoline from the fuel tank into an approved gasoline container.
 - b. Install and tighten the drain screw securely. Turn the fuel valve OFF and remove the fuel sediment cup.
3. Change the battery every third month.
 4. Change the engine oil.
 5. Remove the spark plug and pour about a tablespoon of clean engine oil into the cylinder. crank the engine several revolutions to distribute the oil, then reinstall the spark plug.
 6. Slowly pull the starter grip until resistance is felt. At this point, the piston is coming up on its compression stroke and both the intake and exhaust valves are closed, Storing the engine in this position will help to protect it from internal corrosion.

To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

- (1) Remove the spark plug cap.
- (2) Clean any dirt from around the spark plug base.
- (3) Use a spark plug wrench to remove the spark plug.
- (4) Visually inspect the plug. Discard it if the insulator is cracked or chipped.

Clean the spark plug with a wire brush if it is to be reused.

- (5) Measure the plug gap with a feeler gauge.

The gap should be 0.70-0.80mm (0.028-0.031in). Correct as necessary by carefully bending the side electrode. (See Fig11)

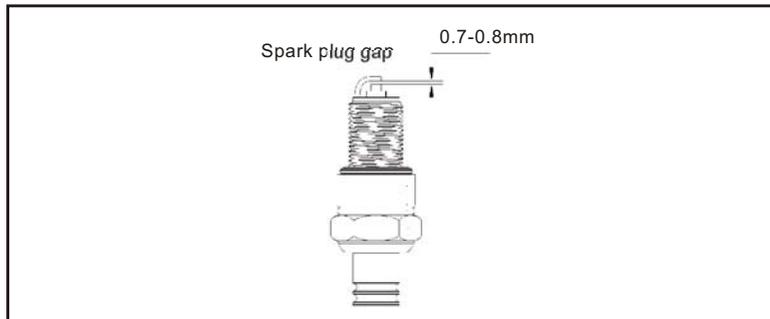


Fig.11. Check spark plug clearance

- (6) Install the spark plug carefully, by hand, to avoid cross-threading.
- (7) After a new spark plug has been seated by hand, it should be tightened 1/2 turn.
- (8) Reinstall the spark plug cap on the spark plug securely.

NOTE

- The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the generator.
- Never use a spark plug with an improper heat range.

NOTE

- Fuel system damage or engine performance problems resulting from the use of fuels that contain alcohol is not covered under the warranty. We cannot endorse the use of fuels containing methanol since evidence of their suitability is as yet incomplete.
- Before buying fuel from an unfamiliar station, try to find out if the fuel contains alcohol, if it does, confirm the type and percentage of alcohol used. If you notice any undesirable operating symptoms while using a gasoline that contains alcohol, or one that you think contains alcohol, replace it by a gasoline that you know does not contain alcohol.

3.3 Check the air cleaner.

Check the air cleaner element to be sure it is clean and in good condition.

Unsnap the two clips, remove the foam element from the air cleaner cover, and check the element. Clean or replace the element if necessary. (See Fig.4)

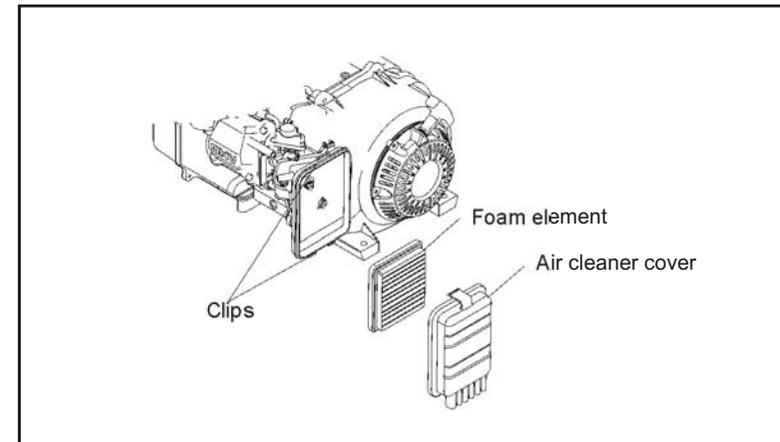


Fig. 4 Remove air cleaner

CAUTION

- Never run the engine without the air cleaner. Rapid engine wear will result from contaminants, such as dust and dirt, being drawn through the carburetor, into the engine.

4. STARTING THE ENGINE

⚠ CAUTION

- When starting the generator after adding fuel for the first time, after longterm storage, or after running out of fuel, turn the fuel valve lever to the "ON" position, then wait for 10 to 20 seconds before starting the engine.
- Before starting the engine, disconnect any load from the AC receptacle.

1. Turn fuel value lever to the ON position. (fuel value lever see Fig1), and check the fuel level.
2. Turn the engine switch to the ON position.
3. Move the choke rod to the CLOSED position. (See Fig.5)

⚠ NOTE

- Do not use the choke when the engine is war or the air temperature is high, the choke is in open position.

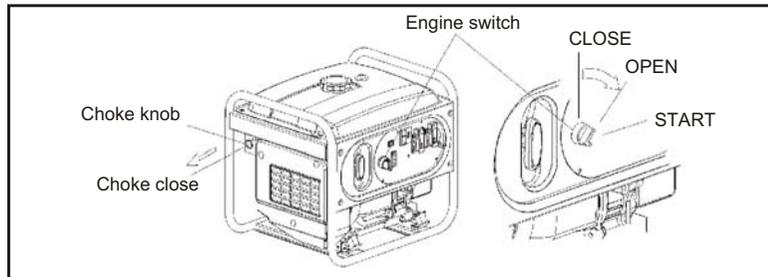


Fig. 5a

4. Electric starter: Turn the engine switch to START position until the engine started.

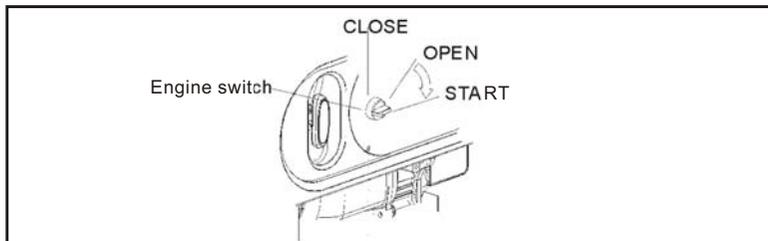


Fig. 5b Electric starter

7.4 FUEL SEDIMENT CUP SERVICE

⚠ WARNING

- Gasoline is extremely flammable and explosive under certain conditions. Do not smoke or allow flames or sparks in the area.

The filter prevents dirt or water which may be in the fuel tank from entering the carburetor. If the engine has not been run for a long time, the filter should be cleaned.

- (1) Turn the fuel valve lever to the OFF position.
- (2) Remove the sediment cup by turning it counterclockwise.
- (3) Clean the cup and filter thoroughly.
- (4) Reassemble. Do not damage the O-ring.

⚠ WARNING

- After installing the sediment cup, be sure to tighten it securely. Check for fuel leaks and make sure the area is dry before starting the engine.

7.5 SPARK PLUG SERVICE (See Fig 7)

Recommended spark plug: WR7DC

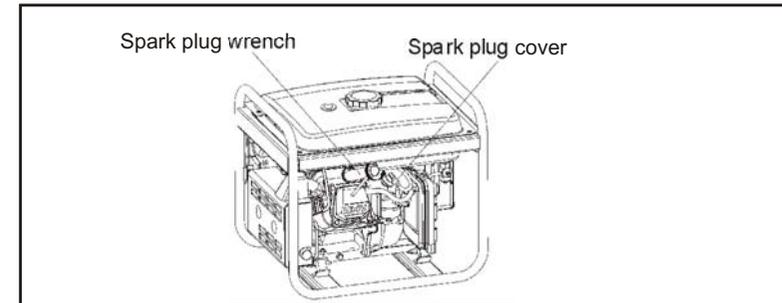


Fig. 10 Remove the spark plug

7.2 CHANGING OIL

Drain the oil the engine is still warm to assure rapid and complete draining.

- (1) Remove the oil filler cap and oil drain plug to drain the oil.
- (2) Install the oil drain plug, and tighten it securely.
- (3) Refill with the recommended oil, and check the oil level.
- (4) Reinstall the oil filler cap and tighten it securely.

Engine oil capacity: 0.6L

Wash your hands with soap and water after handling used oil.

⚠ NOTE

- Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local service station for reclamation. Do not throw it in the trash or pour it on the ground.

7.3 AIR CLEANER SERVICE

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly. Service more frequently when operating the generator in extremely dusty areas.

⚠ WARNING

- Do not use gasoline or low flash point solvents for cleaning. They are flammable and explosive under certain conditions.

⚠ CAUTION

- Never run the generator without the air cleaner. Rapid engine wear may result.

- (1) Unsnap the clips, remove the air cleaner cover.
- (2) Take out the element, blow the inside of the element with compressed air to remove the dust. If the element is very dirty, please replace it.
- (3) If the paper element is dirty, replace it with a new one. Do not clean the paper element.
- (4) Reinstall the air cleaner cover.

5. Pull the starter grip Recoil starter until resistance is felt, then pull the starter grip briskly toward the arrow as shown below. (See Fig.6)

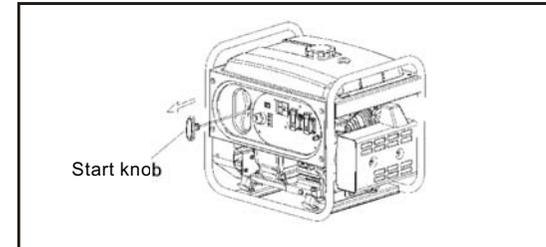


Fig.6

6. Push the choke knob after preheating engine to open it.

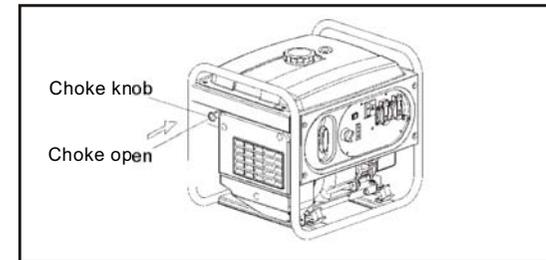


Fig.7 Choke open

High altitude operation

At high altitude, the standard carburetor air-fuel mixture will be excessively rich. Performance will decrease, and fuel consumption will increase.

High altitude performance can be improved by installing a smaller diameter main fuel jet in the carburetor and readjusting the pilot screws. If you always operate the generator at altitudes higher than 1,500m (5,000 feet) above sea level, have your authorized KIPOR dealer perform these carburetor modifications.

Even with suitable carburetor jetting, engine horsepower will decrease approximately 3.5% for each 300m (1,000 feet) increase in altitude. The affect of altitude on the horsepower will be greater than this if no carburetor modification is made.

⚠ CAUTION

- Operation of the generator at an altitude lower than the carburetor is jetted for may result in reduced performance, overheating, and serious engine damage caused by an excessively lean air/fuel mixture.

5. GENERATOR USE

⚠ WARNING

- To prevent electrical shock from faulty appliances, the generator should be grounded. Connect a length of heavy wire between the generator's ground terminal and an external ground source.

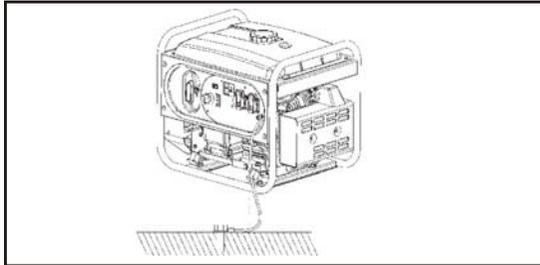


Fig. 8 Generator's ground terminal

⚠ CAUTION

- Do not exceed the current limit specified for any one receptacle.
- Do not connect the generator to a household circuit. This could cause the damage to the generator or to electrical appliances in the house.
- Do not modify or use the generator for other purpose than it is intended for. Also observe the following when using the generator.
 - Do not connect generators in parallel.
 - Do not connect an extension to exhaust pipe.
- When an extension cable is required, be sure to use a rubber sheathed flexible cable.(IEC 245 or equivalent)
- Limit length of extension cables; 60m for cables of 2.5mm² and 100m for cables of 4.0mm².
- Keep the generator away from other electric cables or wires such as commercial power supply lines.

⚠ NOTE

- The DC receptacle can be used while the AC power is in use.
- If you use both at the same time, be sure not to exceed the total power for AC and DC.
- Electrical equipment containing the wiring and plug should not have defect.

7. MAINTENANCE

The purpose of the maintenance and adjustment schedule is to keep the generator in the best operating condition.

⚠ WARNING

- Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

⚠ CAUTION

- Use our genuine parts or their equivalent. The use of replacement parts which are not of equivalent quality may damage the generator.

7.1 Maintenance Schedule

REGULAR SERVICE PERIOD(1) Perform at every indicated month or operating hour interval, whichever occurs first.		EACH USE	FIRST MONTH OR 20HRS	EVERY 3 MONTHS OR 50HRS	EVERY 6 MONTHS OR 100 HRS	EVERY YEAR OR 200 HRS
ITEM						
Engine oil	Check level	○				
	Change		○		○	
Air cleaner	Check	○				
	Clean			○(2)		
Spark plug	Clean-adjust				○	
Spark Arrester	Clean				○	
Sediment cup	Clean				○	
Valve clearance	Check-adjust					○(3)
Fuel tank and filter	Clean					○(3)
Fuel line	Check	Every 2 years (Replace if necessary) (2)				

NOTE: (1) Log hours of operation to determine proper maintenance.

(2) Service more frequently when used in dusty areas.

(3) These items should be serviced by an authorized dealer, unless the owner has the proper tools and is mechanically proficient. See the Shop Manual.

6. STOPPING THE ENGINE

To stop the engine in an emergency, turn the engine switch to the OFF position.

IN NORMAL USE:

1. Switch off the connected equipment and pull the inserted plug.
2. Turn the engine switch to the OFF position.
3. Turn the fuel valve lever to the OFF position.

CAUTION

- Be sure both the fuel valve lever and the engine switch are in "OFF" position when stopping, transporting and/or storing the generator.

5.1 AC applications

1. Start the engine and make sure the output indicator light (green) comes on.
2. Confirm that the appliance to be used is switched off, and plug in the appliance.

CAUTION

- Be sure that all appliances are in good working order before connecting them to the generator. If an appliance begins to operate abnormally, becomes sluggish, or stops suddenly, turn off the generator engine switch immediately. Then disconnect the appliance, and examine it for signs of malfunction.

NOTE

- If an overloaded circuit trips the AC circuit breaker, reduce the electrical load on the circuit, and wait a few minutes before resuming operation.

5.2 Output Indicators, Overload Indicator and Oil Level Indicator

The output indicator light (green) will remain ON during normal operating conditions.

If there is a short circuit or overloaded circuit in a connected appliance the overload indicator light blinks and current to the connected appliance (s) will shut off. When this happens disconnect the appliance (s) and stop the engine to investigate the problem.

Determine if the cause is a short circuit or overloaded circuit in a connected appliance. Correct the problem and restart the engine.

If the output indicator light (green) may blink again, consult your generator dealer.

NOTE

- Before connecting an appliance to the generator, check that it is in good order, and that its electrical rating does not exceed that of the generator. Then

NOTE

- When generator being started, both the overload indicator light (red) and the output indicator light (green) may go on simultaneously. This is normal if the

5.3 DC application

The DC receptacle may be used for charging 12 volt automotive-type batteries only, the zero load voltage is 15V-30V.

DC output will vary according to the position of the Smart throttle switch.

DC current

SMART throttle switch Model	OFF	ON (do not use AC output)
IG3000E	5.0A	Approximately 2.8A

1. Connect the charging cables to the DC receptacle of the generator and then to the battery terminals.

WARNING

- To prevent the possibility of creating a spark near the battery, connect charging cable first to the generator, then to the battery. Disconnect cable first at the battery.
- Before connecting charging cables to a battery that is installed in a vehicle, disconnect the vehicle's grounded battery cable. Reconnect the vehicle's grounded battery cable after the charging cables are removed. This procedure will prevent the possibility of a short circuit and sparks if you make accidental contact between a battery terminal and the vehicle's frame or body.

CAUTION

- Do not attempt to start an automobile engine with the generator still connected to the battery. The generator may be damaged.
- Connect the positive battery terminal to the positive charging cord. Do not reverse the charging cables, or serious damage to the generator and/or battery may occur.

WARNING

- The battery gives off explosive gases; keep spark, flames and cigarettes away. Provide adequate ventilation when charging.
- The battery contains sulfuric acid (electrolyte). Contact with skin or eyes may cause severe burns. Wear protective clothing and a face shield.
 - If electrolyte gets on your skin, flush with water.
 - If electrolyte gets in your eyes, flush with water for at least 15 minutes and call a physician.
- Electrolyte is poisonous.
 - If swallowed, drink large quantities of water or milk and follow with milk of magnesia or vegetable oil and call a physician.
- KEEP OUT OF REACH OF CHILDREN.

2. Start the engine

NOTE

- The DC receptacle may be used while the AC power is in use.
- An overloaded DC circuit will trip the DC circuit protector. If this happens, wait a few minutes before pushing in the circuit protector to resume operation.

Low oil alarm system

The low oil alarm system is designed to prevent engine damage caused by an insufficient amount of oil in the crankcase. Before the oil level in the crankcase falls below a safe limit, the low oil alarm system will automatically shut down the engine (the engine switch will remain in the ON position).

If the low oil alarm system shuts down the engine, the low oil alarm indicator light (red) will come on when you operate the starter, and the engine will not run. If this occurs, add engine oil.