

ORIGINAL INSTRUCTIONS

QB12000E

QB12003E

GENERATING SET

OPERATOR'S MANUAL



Read this manual carefully before operation.
This manual includes important guidance for safety operation.

This Manual contains important safety information and instructions for operating this generating set. **PLEASE READ THIS MANUAL CAREFULLY.** Failure to do so could result in property damage and/or personal INJURY/DEATH.

Provide this manual to any operator of this generating set. This manual should be considered as a permanent part of your generating set and should remain with it when you sell it.

The pictures and figures in the manual shall be only for reference and perhaps there will be difference between pictures & figures and physical products.

All information in this publication is based on the latest product information available at the time of printing. We reserve the right to change, alter and/or improve the product and this document at any time without notice and without incurring any obligation.

Write down the serial number and purchase information of the generating set. Keep this manual and the receipt for future reference.

Model:

Serial number:

Date of purchase:

Contents

I. Operator safety.....	1
1. Safety rules.....	1
II. Getting started.....	6
1. Unpacking.....	6
2. Features and Controls.....	7
III. Operating.....	8
1. Operating checklist.....	8
2. Starting the generating set	12
3. Connect to Electrical Devices.....	14
4. Charging a battery	15
5. Stopping the generating set	17
IV. Maintenance.....	18
1. Maintenance schedule.....	18
2. Generating set maintenance	20
3. Engine maintenance.....	20
V. Trouble-shooting.....	24
VI. Storage and transportation.....	25
VII. Specification.....	26
1. Engine specification.....	26
2. Generating set specification.....	27
3. Wiring Diagram.....	28

I. Operator safety

1. Safety rules



Pay attention to this safety alert symbol. Obey all safety messages that follow this symbol to avoid possible property damage, INJURY or DEATH.

Each safety message is preceded by a safety alert symbol and one of three words, DANGER, WARNING, or CAUTION.

DANGER

Indicates a hazardous situation which, if not strictly complied with, will result in substantial property damage, serious injury or DEATH.

WARNING

Indicates a hazardous situation which, if not strictly complied with, may result in property damage, serious injury or DEATH.

CAUTION

Indicates a hazardous situation which, if not strictly complied with, could result in property damage or injury.



WARNING

READ THIS MANUAL COMPLETELY BEFORE OPERATING.

DO NOT operate this generating set until you have read ALL safety, operation, and maintenance instructions listed in this manual.

Failure to follow the instructions may result in property damage, INJURY 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.

WARNING

This generating set is intended for residential consumer use only. Air cooled generators cannot be run full time.

WARNING

Before each use, check for loose or damaged parts, signs of oil or fuel leaks, and any other condition that may affect proper operation. Repair or replace all damaged or defective parts immediately.

Locate all operating controls and safety labels.

Operate only on level surfaces.

DO NOT expose generating set to excessive moisture, dust, or dirt.

Keep all safety guards in place and in proper working order at all times.

DO NOT allow any material to block the cooling slots.

DO NOT allow children or untrained persons to operate the generating set.

DO NOT run the generating set unattended. Turn off the generating set before leaving the area.



WARNING

FIRE

Operation of this generating set may create sparks that can start fires around dry vegetation.

This generating set may not be equipped with a spark arresting muffler. If the generating set will be used around flammable materials, or on land covered with materials such as agricultural crops, forest, brush, grass, or other similar items, then an approved spark arrester must be installed.

In some area, a spark arrester is required by law. Please contact local fire agencies for laws or regulations relating to fire prevention requirements.

WARNING

Read the instructions provided with the equipment that powered by this engine for any additional safety rules that should be observed in conjunction with generating set startup, shutdown, operation, or protective apparel that may be needed to operate the equipment.



⚠ WARNING

HOT SURFACE

Running engine generators produce heat. Severe burns can occur on contact.

DO NOT touch generator while operating or just after stopping. Avoid contact with hot exhaust gases.

Maintain at least three feet of clearance on all sides to ensure adequate cooling.

Combustible material can catch fire on contact. Maintain at least five feet of clearance from combustible materials.



⚠ DANGER

TOXIC FUMES

The exhaust of the engine contains carbon monoxide, an odorless, colorless, poison gas. Using engine indoors **CAN KILL YOU!**

NEVER use inside any building or any kind of enclosure, **EVEN IF** doors and windows are open.

Place the engine in a well-ventilated area and carefully consider wind and air currents when positioning the engine.



⚠ DANGER

FIRE OR EXPLOSION

Gasoline is highly flammable and extremely explosive.

Fire or explosion can cause severe burns or death.

Keep flammable items away while handling generator.

Fill fuel tank outdoors and in a well-ventilated area with the generator stopped.

Always wipe off spilled fuel and wait until the fuel has dried before starting the generator.

DO NOT operate the generator with known leaks in the fuel system.

Use proper fuel storage and handling procedures. **DO NOT** store fuel or other flammable materials nearby.

Empty the fuel tank before storing or transporting this generator.

Keep fire extinguisher handy and be prepared if a fire starts.



⚠ DANGER

MOVING PARTS

Moving parts can cause severe injury. Keep hands and feet away.

DO NOT operate engine with covers, shrouds, or guards removed.

DO NOT wear loose-fitting clothing, dangling drawstrings or items that could be caught. Tie up long hair and remove jewelry.

NEVER place fingers, hands, or body near the engine when it is running.



⚠ WARNING

KICKBACK

Rapid retraction of the starter cord will pull hand and arm towards the engine faster than you can let go.

Unintentional startup can result in entanglement, traumatic amputation or laceration. Broken bones, fractures, bruises or sprains.



⚠ DANGER

ELECTRICAL SHOCK

This generator produces powerful voltage and the electricity CAN KILL YOU.

This generator must be properly connected to an appropriate ground to help prevent electric shock. Failure to properly ground generator can result in electrocution, especially if the generator is equipped with a wheel kit. Consult an electrician for local grounding requirements.

Installation should be performed by a certified electrician. Improper installation can result in electrical shock and death.

⚠ WARNING

ACID

(For types equipped with battery)

Be careful when using any battery.

Keep away from open flame, heat or spark.

Battery will exhaust hydrogen while charging. Only charge a battery in a well ventilated place.

Avoid spilled battery acid. If contact with skin is made, wash immediately with clean water.

To reduce the risk of electrical shock, DO NOT use electrical cords that are worn, frayed, bare or otherwise damaged.

DO NOT touch bare wires or receptacles.

DO NOT operate generator in wet weather. Keep the generator dry.

DO NOT handle generator or electrical cords while standing in water, while barefoot, or while hands or feet are wet.

DO NOT allow unqualified persons or children to operate or service the generator.

DO NOT hook up any generator to a building electrical system without the proper use and installation of a transfer switch installed by a qualified electrician.

When using generator for backup power, notify utility company. Use approved transfer generator to isolate generator from electric utility.

Failure to isolate generator from power utility can result in death or injury to electric utility workers due to backfeed of electrical energy.

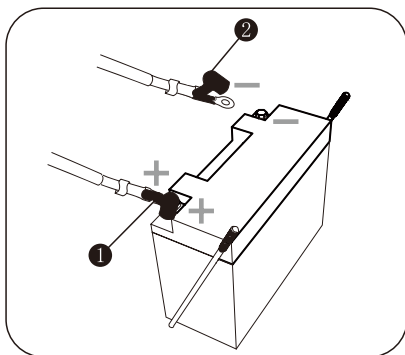
II. Getting started

1. Unpacking

Remove the Generating Set from the Shipping Carton

1. Place the shipping carton on a solid, flat surface.
2. Carefully cut each corner of the carton box from top to bottom. Fold each side flat on the ground.
3. Remove everything from the carton except the generating set.

Attach Negative Battery wire



- ① Positive (+) terminal (red)
- ② Negative (-) terminal (black)

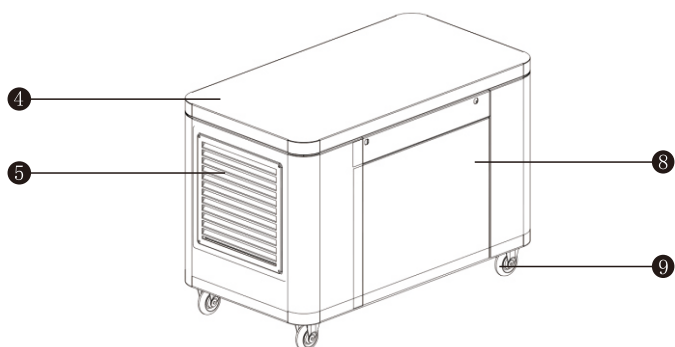
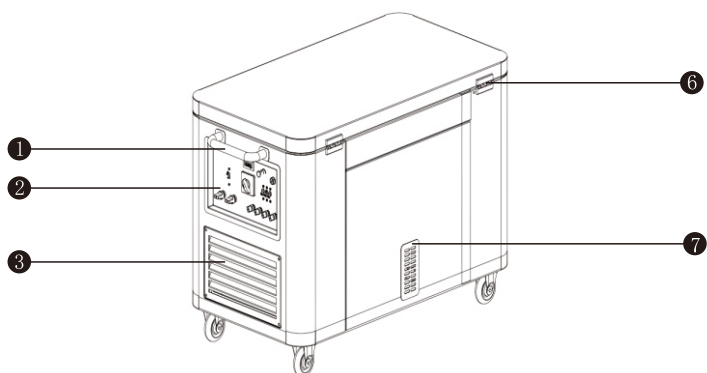
The sealed battery on the generating set is fully charged and pre-installed except for the negative (black) battery cable.

install:

Cut off tie wrap that securing the loose end of negative (black) cable. Connect the negative (black) battery cable to the negative (-) terminal on the battery.

Verify if it is correct and secure that the connections between the battery and generator.

2. Features and controls



- | | |
|--------------------------|---------------------|
| ① Handle | ⑥ Cover hinge |
| ② Control panel | ⑦ Air outlet window |
| ③ Air inlet window | ⑧ Maintenance door |
| ④ Cover | ⑨ Wheel |
| ⑤ Muffler exhaust window | |

III. Operating

1. Operating checklist

1 Operating Location

Only use OUTSIDE and place the generating set in a well-ventilated area.

Only operate the generating set on a flat, level surface and in a clean, dry operating environment.

Allow two feet clearance on all side of the generating set while operating it outdoors.

Please consult your local dealer. In some areas, generating set must be registered with the local utility. Generating sets used to construction sites may be subject to additional rules and regulations.



⚠ DANGER

TOXIC FUMES

The exhaust of the generating set contains carbon monoxide, an odorless, colorless, poison gas. Using engine indoors **CAN KILL YOU**.

NEVER use inside any building or any kind of enclosure, **EVEN IF** doors and windows are open.

Place the generating set in a well-ventilated area and carefully consider wind and air currents when positioning generating set.

High altitude

This engine may require a high altitude carburetor kit to ensure correct operation at high altitudes. Consult your local dealer for high altitude kit information if you always operate your engine at altitudes above 5,000 feet (1,500 meters).

⚠ CAUTION

Even with carburetor modification, generating set horsepower will decrease about 3.5% for each 1,000 feet (300 meters) increase in altitude. The effect of altitude on horsepower will be greater than this if no carburetor modification is made.

⚠ CAUTION

Operation the engine at altitude below 5,000 feet (1,500 meters) with modified carburetor may cause the generator overheat and result in serious engine damage.

2 Operating Condition

Check for loose or damaged parts, signs of oil or fuel leaks, and any other condition that may affect proper operation. Repair or replace all damaged or defective parts immediately.

WARNING

Failing to correct problem(s) before operation could result in property damage, serious injury or DEATH.

Remove any excessive dirt or debris, especially around the muffler and recoil starter.

DO NOT move or tip the generating set during operation.

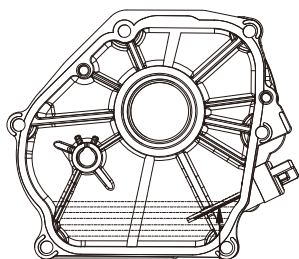
Use generator only for intended uses. If you have questions about intended use, ask your local dealer.

3 Engine oil

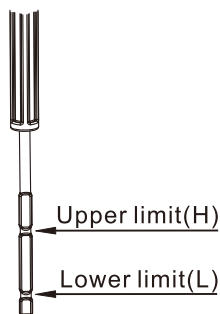
Place the engine on a level surface with engine stopped.

Remove the dipstick and wipe it clean.

Reinstall dipstick into tube; rest on oil fill neck, DO NOT thread cap into tube.



Dipstick



Remove the dipstick again and check oil level. Level should be within the upper limit and lower limit range on dipstick.

Fill to the upper limit (marked with "H") of the dipstick with the recommended oil if the oil level is low.

Reinstall and fully tighten the dipstick.

Refer to **add oil** instruction in **MAINTENANCE** section for more information.

Oil capacity (rated):
See parameters.

WARNING

Oil is a major factor affecting performance and service life. Use 4-stroke automotive detergent oil recommended in the **MAINTENANCE** section of this manual.

WARNING

This engine is not filled with oil at the factory. Any attempt to crank or start the engine before it has been properly filled with the recommended type and amount of oil may result in engine damage and void your warranty.

CAUTION

Operate generator only on level surfaces. The engine is equipped with a low oil sensor (applicable types) that will automatic stop the engine when the oil level falls below the safe limit. To avoid the inconvenience of an unexpected shutdown, fill to the upper limit and check the oil level regularly.

4 Engine fuel

With the engine stopped, check the fuel level gauge. Refill the fuel tank if necessary.

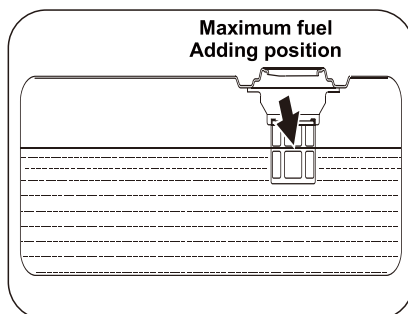
Use clean, fresh, regular unleaded gasoline.

DO NOT mix oil with gasoline.

Always wipe up any spilled fuel.

Be sure not to fill above the upper limit mark. Always allow room for fuel expansion.

Fuel capacity (rated):
See parameters.



DANGER

Do not fill the fuel tank above the upper limit. Over fill will results in engine die or damage the carbon canister (if equipped) and void your warranty.



DANGER

FIRE OR EXPLOSION

Gasoline is highly flammable and extremely explosive.

Keep flammable items away while handling gasoline.

Fill fuel tank outdoors and in a well-ventilated area with the generator stopped.

Always wipe off spilled fuel and wait until the fuel has dried before starting the generating set.

DO NOT operate the generating set with known leaks in the fuel system.

Use proper fuel storage and handling procedures. **DO NOT** store fuel or other flammable materials nearby.

Empty the fuel tank before storing or transporting this generating set.

Keep fire extinguisher handy and be prepared if a fire starts.

NEVER use engine or carburetor cleaner products in the fuel tank or permanent damage may occur.

It is important to prevent gum deposits from forming in essential fuel system parts,

such as the carburetor, fuel filter, fuel hose or tank during storage. Also, experience indicates that alcohol-blended fuels (called gasohol, ethanol or methanol) can attract moisture, which leads to separation and formation of acids during storage.

Acidic fuel can damage the fuel system of the generating set while in storage. Be sure to review the instructions given in "Storage" section.

Gasoline/Alcohol Blends: up to 10% alcohol, 90% unleaded gasoline by volume is approved as a fuel. Other gasoline/alcohol

blends are not approved. Effects of old, stale or contaminated fuel are not warrantable.

CAUTION

To minimize gum deposits in your fuel system and to insure easy starting, do not use gasoline left over from the previous season.

CAUTION

Pressure can build up in the fuel tank. Allow the generating set to cool for at least two minutes before removing fuel cap. Loosen the fuel cap slowly to relieve any pressure in the tank.

5 Electrical devices

Disconnect all electrical devices from the generator and switch off the AC circuit breaker before start the engine.

The generator may be hard to start with electrical devices connected.

6 Grounding

The generating set must be properly connected to an appropriate ground. It helps prevent electrical shock if a ground fault

condition exists in the generating set or in connected electrical devices, especially when the unit is equipped with a wheel kit. Proper grounding also helps dissipate static electricity, which often builds up in ungrounded devices.



⚠ DANGER

Electrical Shock

Failure to properly ground the generating set can result in electric shock.

A ground terminal on the frame of the generator has been provided on the generator end. For remote grounding, connect a length of heavy gauge (4 mm²) copper wire between the generator ground terminal and a copper rod driven into the ground.

The National Electrical Code requires that the frame and external electrically conductive parts of this generating set be properly connected to an approved earth ground. Local electrical codes may also require proper grounding of the unit. We strongly recommend that you consult with a qualified electrician for grounding requirements in your area.

2. Starting the generating set

1

Perform operating checklist (See page 8) and remove all loads.

2

Turn fuel valve to the “ON” position.



3

Turn off AC breaker protector.

4

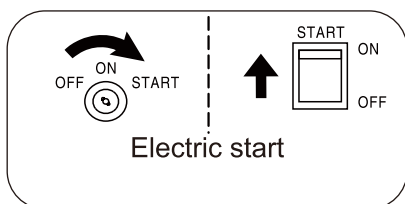
Pull the choke valve switch to “CLOSE” position.

⚠ CAUTION

Choke plate should be setting in different width due to temperature and other factors.

5

Electric start: Turn and keep the key to “**START**” position till the engine is started. After the engine is started, release the key to return to “**ON**” position.



If the electric starter fails to start the engine, immediately turn off the starter. Don't attempt to restart the engine before the failure cause is identified. Don't restart the engine by replacement of other storage battery without authorization.

⚠ CAUTION

If the engine fails to start after attempt for 3 times or flames out after starting, inspect and ensure that the generator is placed in horizontal surface and enough engine oil is injected.

During starting, don't keep the starting switch to “start” position for more than 5s, and otherwise it is possible to damage the motor. If the unit fails to start within first time, restart after

about 10s. After the unit is used for a period, if the starting speed of the motor falls, please replace the battery.

During the operation of the unit, the battery supplies power for the solenoid valve of the carburetor. For this, when the unit is turned off, make sure that the starting switch is in “**OFF**” position and otherwise the storage battery voltage is reduced due to the operating solenoid valve of the carburetor, impacting on starting for next time.

If the engine is equipped with an engine oil alarm, it is possible to prevent engine start when the engine oil in the crankcase is lower than the minimum level.

During running-in, routinely inspect the engine oil. See maintenance section for recommended maintenance period.

6

When the engine operates stably, pull the choke valve to “**OPEN**” position.

7

The generating set may be normally loaded.

WARNING

Connect the output terminal of the generating set with the electric equipment. Don't start or stop the engine when the electric equipment is in "ON" status.

3. Connect to Electrical Devices

Inspect power cord for damage before using. There is a hazard of electrical shock from crushing, cutting or heat damage.



DANGER

ELECTRICAL SHOCK

To reduce the risk of electrical shock, DO NOT use electrical cords that are worn, frayed, bare or otherwise damaged.

DO NOT touch bare wires or receptacles.

DO NOT handle generating set or electrical cords while standing in water, while barefoot, or while hands or feet are wet.

1. Allow the engine to stabilize and warm up for a few minutes after starting.

2. Make sure the electrical devices in "OFF" position. and the load current is not higher

than the maximum withstanding current of single socket.

CAUTION

If the current of single load is higher than the maximum withstanding current of single socket, please connect the load with the terminal.

3. Turn the AC breaker protector to "ON" position.

CAUTION

If connected devices overheat, turn them off and disconnect them from generating set.

Bearing capacity

WARNING

DO NOT overload the generating set.

Exceeding the capacity of generating set can damage the generating set and/or electrical devices connected to it.

You must make sure your generating set can supply enough rated(running) and surge (starting) watts for the electrical devices you will power at the same time. Follow these simple steps to calculate the running







and starting watts necessary for your purposes.

- 1. Select the electrical devices you will power at the same time.
- 2. The amount of power you need to run all the devices is the total rated (running) watts of these items.
- 3. Identify how many surge (starting) watts you will need. Surge wattage is the short burst of power needed to start electric motor-driven tools or appliances such as a circular saw or refrigerator. Because not all motors start at the same time, total surge watts can be estimated by adding only the electrical device(s) with the highest additional surge watts to the total rated watts from step 2.

⚠ WARNING

You must isolate the generating set from electric utility by opening the electrical system’s main circuit breaker or main switch if the generating set is used for backup power. Failure to isolate the generating set from the power utility may result in injury or death to electric utility workers and damage to the generating set due to backfeed of electrical energy.

Wattage Reference Chart

Electric equipment		Rated power (W)	Starting power (W)
Air conditioner		2400	4800
Electric welding machine		2500	5000
Electric hammer		1000	1500
Water pump		800	1200
Communication module 30A, 230V		1900	3700
Communication module 50A, 230V		3200	6000

4. Charging a Battery
(Applicable types)

Charge the storage battery by storage battery charging socket, and keep the full charge of the storage battery for use at any time.

Charge the storage battery in dry environment.

WARNING

Storage batteries give off explosive hydrogen gas while recharging. An explosive mixture will remain around the battery for a long time after it has been charged. The slightest spark can ignite the hydrogen and cause an explosion, resulting in blindness or other serious injury.

WARNING

DO NOT allow smoking, open flame, sparks or any other source of heat around a battery. Wear protective goggles, rubber apron and rubber gloves when working around a battery.

Battery electrolyte fluid is an extremely caustic sulfuric acid solution that can cause severe burns. If spill occurs flush area with clear water immediately.

To recharge Volt batteries, proceed as follows:

- Check fluid level in all battery cells. If necessary, add **ONLY** distilled water to cover separators in battery cells.

DO NOT use tap water.

- If the battery is equipped with vent caps, make sure they are installed and are tight.

- If necessary, clean battery terminals.

- Connect battery charge cable clamp with **red** handle to the **positive (+)** battery terminal.

- Connect battery charge cable clamp with **black** handle to the **negative (-)** battery terminal.

- Start engine. Let the engine run while battery recharges.

- When battery has charged, shut down engine.

CAUTION

Use an automotive hydrometer to test battery state of charge and condition. Follow the hydrometer manufacturer's instructions carefully. Generally, a battery is considered to be at 100% state of charge when specific gravity of its fluid (as measured by hydrometer) is 1.260 or higher.

5. Stopping the generating set

1

Turn off AC breaker protector.

Remove the plug of all electric equipment from the generating set panel.

WARNING

NEVER stop the engine with electrical devices connected and with the connected devices turned **“ON”**.

2

Allow the generating set run at no load for a few minutes to stabilize internal temperatures of the engine and generating set.

3

Turn off the flameout switch (turn the engine switch to **“OFF”** position).


4

Turn the fuel valve to **“OFF”** position.

IV. Maintenance

It's the operator's responsibility to complete all scheduled maintenance in a timely manner. Correct any issue before operating the generating set. Always follow the inspection and maintenance recommendations and schedules in this manual.

Before servicing the generating set, **stop the generating set**, disconnect all electric devices and battery(if equipped) and allow the generating to cool down.

**⚠ DANGER**

Accidental starts can cause severe injury or death. Remove and ground spark plug wire before performing any service.

⚠ WARNING

Improper maintenance or failure to correct a problem before operation can cause a malfunction and result in property damage, serious injury or DEATH.

Improper maintenance will void your warranty.

⚠ CAUTION

The filter element may contains PAHs, PAHs are harmful for your health. Please wear gloves for protection during air filter maintenance.

1. Maintenance schedule

Follow the service intervals indicated in the chart below. Service your generator more frequently when operating in adverse conditions.

Contact your local service dealer for your generating set or engine maintenance needs.

		Each time before use	10 hours or the first month ^{note2}	50 hours or every three months ^{note2}	100 hours or every six months ^{note2}	300 hours or every year ^{note2}
Engine oil	Inspection	√				
	Replacement		√		√	
Air filter	Inspection	√				
	Cleaning			√ ^{note3}		
Spark plug	Inspection and adjustment				√	
	Replacement					√
Spark extinguisher ^{note1}	Cleaning				√	
No-load	Inspection and adjustment					√ ^{note4}
Valve clearance	Inspection and adjustment					√ ^{note4}
Low permeability oil tube ^{note1}	Inspection	Every two years ^{note4}				
Oil tube	Inspection	Every two years ^{note4}				

Note1: Applicable types (if available).

Note2: Before each season and after then (whichever comes first).

Note3: Service more frequently under severe, dusty, dirty conditions.

Note4: To be performed by knowledgeable, experienced owners or the authorized dealer.

2. Generating set maintenance

Make certain that the generator is kept clean and stored properly.

Use a damp cloth to clean exterior surfaces of the generator.

Use an compressed air(25 PSI) to clear dirt and debris from the generator.

Inspect all air vents and cooling slots to ensure that they are clean and unobstructed.

WARNING

DO NOT use water to clean the generating set. Water can enter the generating set through the cooling slots and damage the generating set windings.

WARNING

DO NOT modify the generating set in any way.

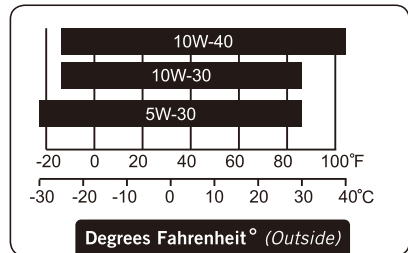
DO NOT tamper with governed speed. Generating set supplies correct rated frequency and voltage when running at factory set.

Tampering with the factory set governor will void your warranty.

3. Engine maintenance

Engine Oil

SAE 10W-40 is recommended for general, all-temperature use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.

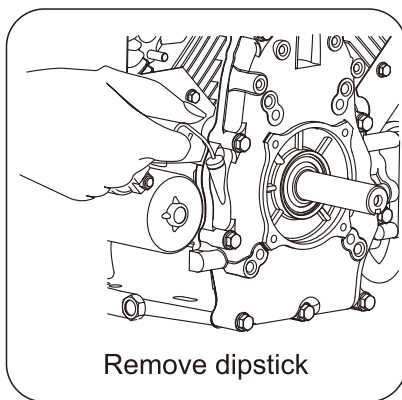
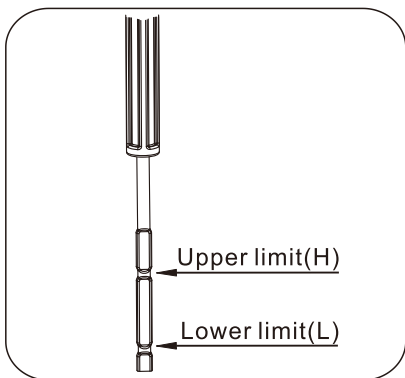


Ambient temperature

Oil capacity (rated):
see parameters.

Add oil

1. Place the engine on a level surface.
2. Remove the dipstick and wipe it clean.
3. Add recommended oil to the upper limit.



⚠ CAUTION

Oil level check

Reinstall dipstick into tube; rest on oil fill neck, DO NOT thread cap into tube.

4. Fully tighten the dipstick.
5. Dispose of used oil at an approved waste management facility.

Change oil

⚠ CAUTION

Change oil when the engine is warm from operation.

1. Place the engine on a level surface.
2. Clean area around dipstick and drain plug.
3. Remove oil dipstick.

4. Remove the oil drain plug and allow the oil to drain completely.

5. fully tighten the drain plug.

6. Add recommended oil to the upper limit (see add oil instruction above).

7. Reinstall and fully tighten the dipstick.

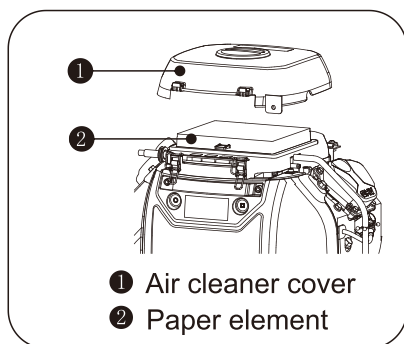
8. Dispose of used oil at an approved waste management facility.

⚠ WARNING

The engine is not filled with oil at the factory. Any operation before it has been properly filled with the recommended type and amount of oil may result in engine damage and void your warranty.

Air filter

1. Clean area around the air filter.
2. Unhook retaining clips and remove cover.
3. Remove the paper filter element from the cover.



4. Check condition of rubber seal and replace if necessary.
5. Cleaning the paper element: gently tap the filter element for several times. Do not clean the paper filter element with brushes, etc..
6. Install the paper filter element into the cover.
7. Reinstall air cleaner cover:

WARNING

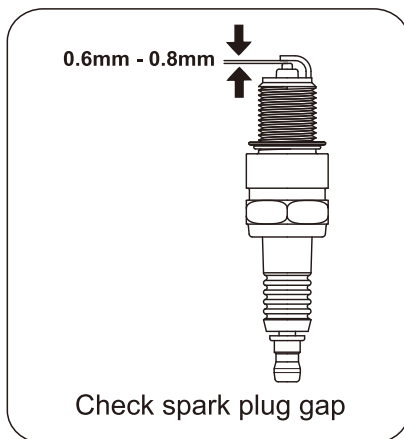
DO NOT run the engine without the air filter, serious danger can result.

Spark plug

1. Clean any dirt from the spark plug cap and spark plug base.
2. Remove the spark plug cap.
3. Using socket wrench to loose and remove the spark plug.
4. Inspect the spark plug and spark plug washer, if it's damaged or worn, replace with new one. Clean the spark plug with wire brush if reuse it.
5. Check spark plug gap. Carefully bend side electrode to adjust the gap if necessary.

Spark plug gap:

0.6mm - 0.8mm



6. Carefully thread the plug into the engine **by hand**.
7. After the spark plug is seated, use spark plug wrench to tighten the plug.

**Spark Plug tighten Torque:
20-25 N.m**

8. Attach the spark plug wire to the plug.

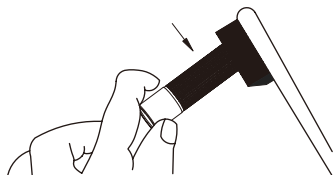
⚠ WARNING

Only use recommended spark plug or equivalent. **DO NOT** use spark plugs that have improper heat range.

Spark Arrester

(Applicable types)

1. Allow the engine to cool completely before servicing the spark arrester.
2. Remove the two screws holding the cover plate which retains the end of the spark arrester to the muffler.
3. Remove the spark arrester screen.
4. Carefully remove the carbon deposits from the spark arrester screen with a wire brush.



Clean carbon deposits

5. Replace the spark arrester if it is damaged.

6. Reinstall the spark arrester in the muffler and attach with the two screws.

Speed

The speed has been pre-set at the factory and should rarely require readjustment. Consult your local authorized dealer for such needs.

⚠ WARNING

Unapproved adjustment will damage your engine and/or your electrical devices and void your warranty.

Adjustment

There has no other service and/or adjustment need for your generator.

Unapproved adjustments or tampering can damage your generating set and your electrical devices and will void your warranty. Contact your local dealer for such needs.

⚠ WARNING

Tampering with the factory set governor will damage your generator and void your warranty.

V. Trouble-shooting

Failure	Cause	Removal method
Engine won't start.	Engine switch is "OFF".	Turn engine switch to the "ON" position.
	No Fuel.	Fill tank per instructions in this manual.
	Inadequate engine oil.	Check oil level. This engine is equipped with a low oil sensor. The engine cannot be started unless the oil level is above the prescribed lower limit.
	No ignition.	Remove the spark plug cap. Clean any dirt from around the plug base, then remove the spark plug. Install the spark plug in the plug cap. Turn the engine switch "ON". Grounding the electrode to any engine ground, pull the recoil starter to see if sparks jump across the gap. If there is no spark, replace the plug. Reinstall the plug and start engine according to instructions in this manual. Consult Customer Service if necessary.
Generating set has no output.	No ignition.	Reset circuit breakers.
	Inadequate cord sets or extension cords.	Check cord sets or extension cords capabilities in section Controls; Cable Size in this manual. Consult Customer Service if necessary.

VI. Storage and transportation

Storage

The generating set should be started at least once every two weeks and allowed to run for at least 20 minutes. Follow the instructions below for longer term storage if the generating set will be out of service for 2 months or more.



⚠ DANGER

Fire or explosion

Gasoline is highly flammable and extremely explosive. Empty the fuel tank and shut off fuel valve before storing or transporting this generating set.

1. Allow the generating set to cool completely before storage.
2. Clean the generating set according to the instructions in the Maintenance section.
3. Drain all fuel completely from the fuel hose and carburetor to prevent gum from forming.
4. Turn off the fuel supply at the fuel valve..
5. Change the oil.
6. Reattach the spark plug.

7. Remove the spark plug and pour about 15 ml of oil into the cylinder. Crank the engine slowly to distribute the oil and lubricate the cylinder.

8. Store the unit in a clean, dry area out of direct sunlight.

Transportation

To prevent fuel spillage when transporting or during temporary storage, the generating set should be secured upright in its normal operating position, with the engine switch OFF. The fuel valve lever should be turned OFF.

⚠ WARNING

When transporting:

Do not overfill the tank.
Do not operate the generating set while it is on vehicle. Take the generating set off the vehicle and use it in a well-ventilated place. Avoid a place exposed to direct sunlight when putting the generating set on a vehicle. If the generating set 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 generating set on board. If you must transport the generating set on a rough road, drain the fuel from the generating set beforehand.

VII. Specification

1. Engine specification

Category	Item		GB680 or 2V78FD/P-A
Main structure parameters	Air valve arrangement		Overhead valve
	Number of air cylinders		2
	Air cylinder diameter (mm)		78
	Piston stroke(mm)		71
	Total displacement(cm ³)		679
	Compression ratio		8.5:1
	Rated power(kW/min ⁻¹)		14.5/3600
	Direction of rotation		Anticlockwise (From the PTO end direction)
	Ignition advance angle		25°±2°
	Valve clearance	Admission valve clearance (mm)	0.10-0.15
		Emission valve clearance (mm)	0.15-0.20
Fuel and oil	Spark gap(mm)		0.6-0.8
	Lubricating oil brand		SAE 10W/30
	Fuel supplier		Carburetor oil supply
	Oil capacity(L)		1.5

2. Generating set specification

Category	Item	QB12000(E)		QB12003(E)	
Generating set	Voltage regulation mode	AVR			
	Rated frequency(Hz)	50	60	50	60
	Rated power(kW)	10.0	11.0	10.0	11.0
	Max. power(kW)	11.0	12.0	11.0	12.0
	Phase	Single		Three	
	Rated voltage(V)	230 120(120/240) 400 220 380			
	Power factor	1.0		0.8	
Whole set	Fuel capacity(L)	23			
	Insulation grade	F			
	Operating temperature(℃)	-5~40			
	Dimension(L×W×H)(mm)	1213×650×933			

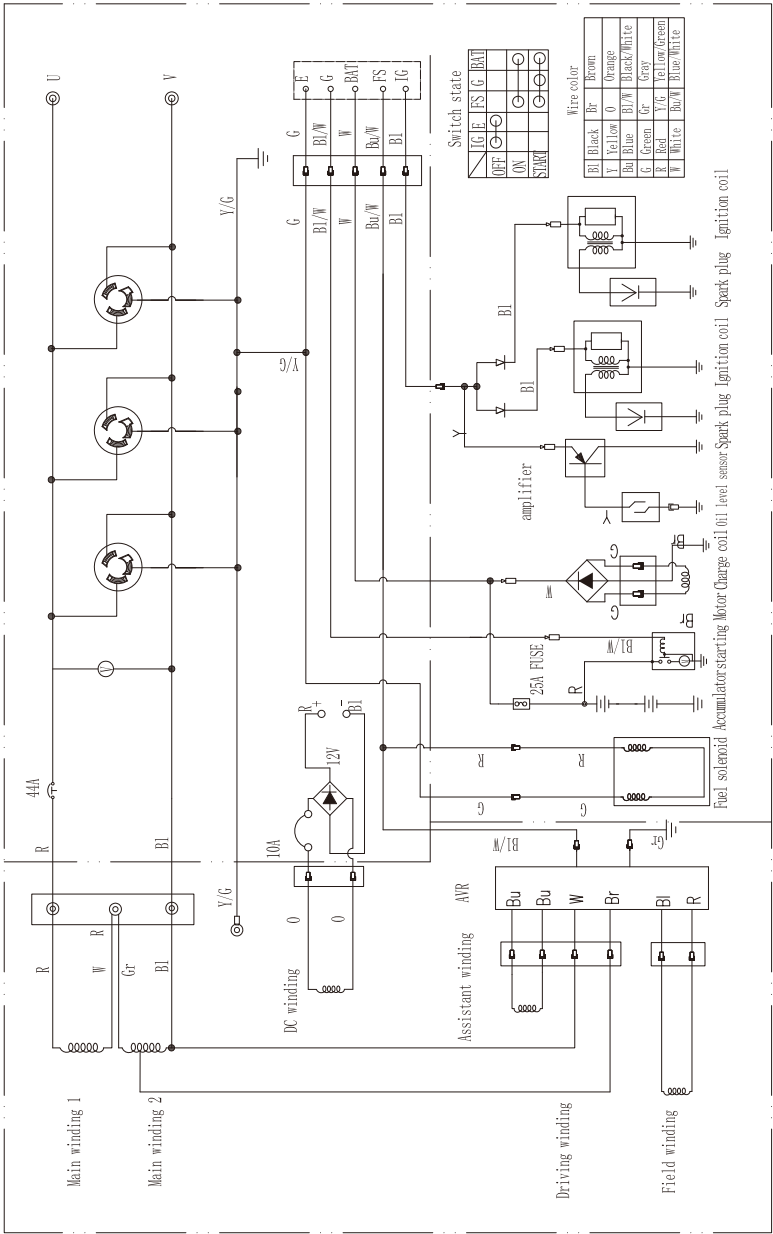
The air-fuel ratio will be more rich in higher altitude area, which will led to lower performance of engine, and higher consuming of fuel.

The output of generating set should be measured according to the real operation condition such as temperature, pressure and humidity etc.

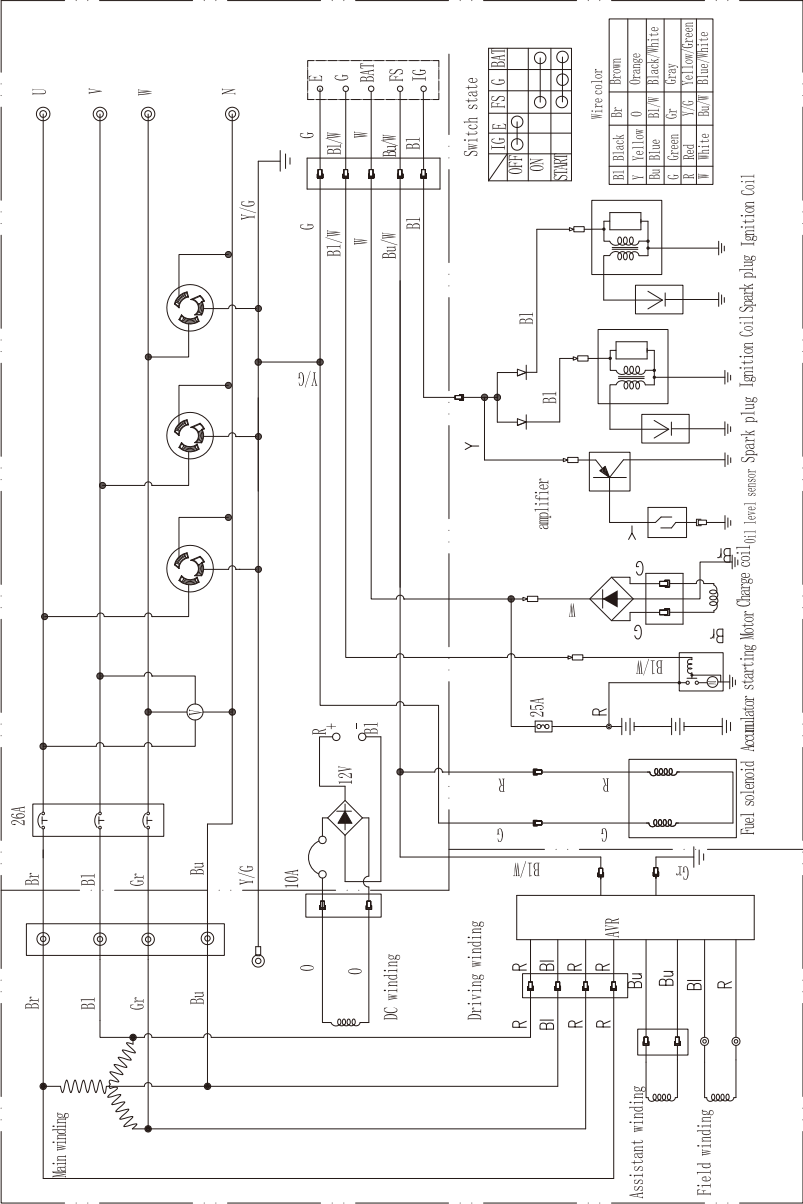
Notes: The gasoline engine with different specification and configurations may have different parameters and may change at any time without notice.

3. Wiring Diagram

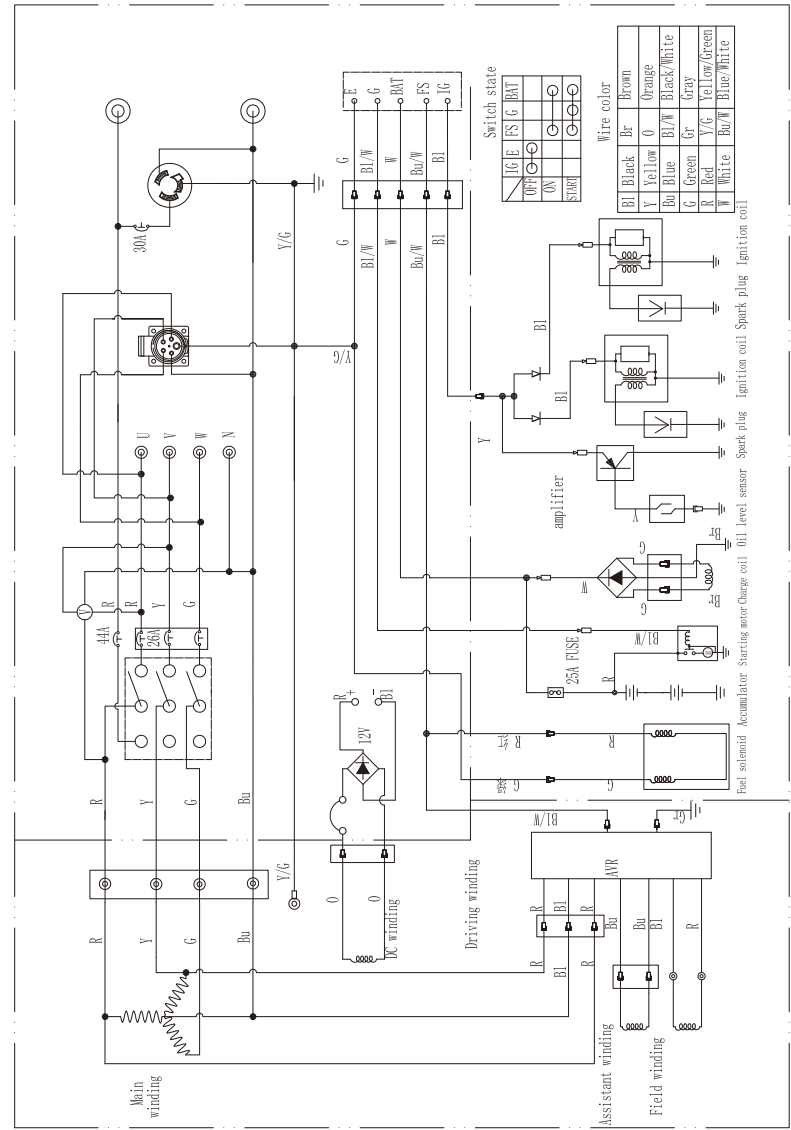
Single phase



Three phase



Single/three phase



NOTE: Because of the difference of generator, the wiring diagram is only for reference.



CHONGQING ZONGSHEN GENERAL POWER MACHINE CO., LTD.

Address: Zongshen Industry Zone, Banan District, Chongqing, 400054, China

Phone: 0086-23-66372525

Hot Line: 0086-4001380026

<http://www.zongshenpower.com>

1223#/V1.5