



AIR COOLED SILENT TYPE DIESEL GENERATOR USER MANUAL



STAR
powerbox



SDG 10000 PB
Air Cooled Silent Type Diesel Generator

STAR
powerbox



SDG 10000 PB3
Air Cooled Silent Type Diesel Generator

STAR
powerbox



SDG 17000 PB3
Air Cooled Silent Type Diesel Generator

Thank you for purchasing our Portable Diesel series generator set.

This user manual tells you how to use and maintain your diesel generator. Please read carefully before you start using your diesel generator. Everyone who will use the generator should read and understand this user manual. This time you will spend before use will ensure your safety and extend the life of your generator.

Please pay special attention to explanations with the following words:

⚠ DANGER:

This symbol indicates an imminently hazardous situation which, if unavoidable, may result in death or serious injury. This sign word is used for extremely dangerous situations.

⚠ WARNING:

This symbol indicates a potentially hazardous situation which, if unavoidable, could result in death or serious injury.

⚠ CAUTION:

This symbol indicates a potentially hazardous situation which, if unavoidable, may result in minor or moderate injury. It can also be used to warn against unsafe practices.

NOTE:

Useful informations.

Our company reserves the right to make changes in the design and/or technical specifications at any time without notice and without obligation, with the continuous development and increase of the products. It should be noted by the user that there may be some differences between the content specified in the instructions for use and the practical products.

⚠ WARNING:

Diesel series generators are designed to provide safe and reliable service if used according to the instructions. Read and understand the user manual before using the set. Failure to do so may result in injury to persons or damage to equipment.

---RULES TO BE FOLLOWED IN MAINTENANCE, REPAIR AND USE---

Do not allow people who do not know how to operate the generator.
Do not allow children to use the generator while it is stopped or running. It may be dangerous for children and the generator may be damaged.
Do not allow animals to come near the generator. It may be dangerous for animals and the generator may be damaged.

----- SAFETY TIPS -----

 **WARNING:**

1. Preventing electric shock:

The generator must be grounded to prevent electric shocks.
While in water, barefoot, wet hands, or under rain or snow
Do not use the generator or any electrical equipment while it is on, otherwise it may result in electric shock.

2. Preventing fires:

Do not add fuel to the fuel tank while the engine is running.
Do not operate your generator in environments with flammable and explosive materials. Do not place easily flammable or explosive materials such as gasoline, oil, fabric, etc., near the generator while the generator is running. Do not place it near the generator when the engine is hot or the generator is running.

Use a clean cloth to wipe up spilled fuel. Gasoline, kerosene, matches or other
Keep flammable and explosive materials away from the set because the temperature is too high around the exhaust muffler during operation.

It is necessary to provide adequate ventilation conditions to protect from fire damage. During use, the distance between the set generator and the wall and other devices should be at least 1 meter.

Run the engine on a level surface as much as possible. The permissible inclination of the engine for continuous use is 20 degrees. Fuel spillage may occur if the engine is tilted beyond the limit.

Do not put the generator set indoors while the engine is still hot.

Never allow anyone to start the engine without proper instruction.

3.Preventing burns:

Never touch a hot muffler, hot exhaust pipe, or engine cooling fins. Do not touch the engine and the exhaust for a few minutes after the generator is stopped. Do not open the oil tank while the engine is running.

⚠DANGER:

4. To prevent inhalation of exhaust gas:

Always provide adequate ventilation. Do not run the generator indoors. The engine consumes oxygen and emits deadly carbon monoxide poisonous gas. Improper ventilation can damage the generator or injure people.

If indoor operation is unavoidable, you must provide adequate ventilation so that people and animals are not affected.

5.Charging the battery:

The battery contains sulfuric acid, which can cause blindness and severe burns: Charging the battery produces colorless explosive gas that can cause blindness or injury. While charging the battery, smoking should not be allowed, sparks or flames should not be present. In case of contact, rinse with water and seek medical advice immediately, especially if your eyes are affected.

6.Other safety advice:

Learn to use all the controls and stop the engine quickly.

Keep the battery out of the reach of children, do not place objects on it,

Keep the ventilation caps tight and level.

Always wear a helmet and safety shoes (with non-slip soles) and appropriate clothing.

Do not work under the influence of alcohol.

Keep away from rotating parts while the engine is running.

When the engine is attached to a machine, be sure to provide suitable covers for belts, couplings and other dangerous parts.

A spark arrester is provided as an optional part for this engine. In some areas it is illegal to start the engine without a spark arrester. Check local laws and regulations before starting the engine.

Work according to the rules and regulations of the work area.

Use the right tools and equipment.

Charge the battery in a fully ventilated place.

Be sure to verify battery polarity.

PREFACE

Thank you for choosing our company's products.

This manual is helpful for you to operate and maintain your machine correctly. Please read the manual carefully before operating your machines. In this way, it is ensured that the generators work under the best conditions and have a long life.

This manual will describe how your generator set works and how to maintain it. You can send us any questions and suggestions about the manual via e-mail.

Within the framework of innovations we have made in our products, our users should consider that some of the information in the manual may not match with the product in your hand.

star generator has the right to make all kinds of changes without notice without any obligation.

 Please pay attention to this warning.

If you cannot operate the machines in accordance with the information written in the manual, your machine may be damaged or broken.

IMPORTANT

- 1) Always close the fuel cock when you stop the generator. Otherwise, the generator may be damaged.
- 2) Generators must be operated continuously for a maximum of 5 hours. At the end of this period, it should be rested for at least 1 hour.
- 3) If the items specified in the user manual are not followed, the product will be out of warranty.
- 4) The product is out of warranty in case of interventions other than the authorized service.
- 5) If the generator is not operated for a long time, its battery may discharge. The generator needs to be run once a week for the engine to be lubricated, to have a long life and to charge the battery.
- 6) diesel generator for professional purposes such as industry-production-construction-mining, for continuous operation. Do not operate welding machine. This product is designed for individual use and standby (for short-term work). Use outside of the scope of warranty does not exclude the product. will take it out.
- 7) Start is the responsibility of the customer.
- 8) Before connecting the generator to the electrical system; 2-pole for 1-phase generators, for 3-phase; Use a 4-pole mains/generator selector switch.

TECHNICAL DEFINITIONS AND PRINCIPLES



SILENT TYPE - AIR COOLED DIESEL GENERATOR

SDG 10000 PB

**ADVANCED TECHNOLOGY
HIGH PERFORMANCE
RELIABLE QUALITY**



ATS (Automatic Transfer Switch)



PERFORMANCE

Frequency	Hz	50
Rated Voltage	V	230
Rated Power	kW / kVA	9 * 9
Max. Output	kW / kVA	10 * 10
Rated Current	A	39
Phase Number		Single Phase
Alternator	100% Copper	brush type, AVR
Starting System		Electric
Noise Level (at 7m)	dB	85
Fuel Tank Capacity	L	15

ENGINE

Model		1105F
Engine Type	Single-Cylinder ,Vertical 4-Cycle, Air Cooled diesel	
Bore *Stroke	mm	105*88
Displacement Capacity	cc	761
Fuel	0 #0r - 10 # light diesel oil	
Lubrication Oil Volume	L	2
Combustion System		Direct Injection



DIMENSIONS

Packing (L*W*H)	mm	1120*640*870
Gross Weight	kg	242
20 FT		36
40 HQ		108



STAR provides 4.5~15KVA silent diesel generators, whose engines are enclosed in soundproof canopy and designed to be quieter.

Star Generator makes them ideal for a variety of environments where noise reduction is required or desirable.

With various models offering different power outputs, they cater to both small-scale and large-scale power needs, ensuring dependable performance and efficiency.

Technical data is a subject to change. Star assumes no responsibility for misprint. Pictures may differ from original product.

TECHNICAL DEFINITIONS AND PRINCIPLES



SILENT TYPE - AIR COOLED DIESEL GENERATOR

SDG 10000 PB3

**ADVANCED TECHNOLOGY
HIGH PERFORMANCE
RELIABLE QUALITY**



ATS (Automatic Transfer Switch)



PERFORMANCE

Frequency	Hz	50
Rated Voltage	V	400
Rated Power	kW - kVA	9 * 9
Max.Output	kW - kVA	10 * 10
Rated Current	A	16
Phase Number		Three Phase
Alternator		100% Copper brush type, AVR
Starting System		Electric
Noise Level (at 7m)	dB	85
Fuel Tank Capacity	L	15

ENGINE

Model		1105F
Engine Type	Single-Cylinder ,Vertical 4-Cycle, Air Cooled diesel	
Bore *Stroke	mm	105*88
Displacement Capacity	cc	761
Fuel	0 #0r - 10 # light diesel oil	
Lubrication Oil Volume	L	2
Combustion System		Direct Injection



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DIMENSIONS

Packing (L*W*H)	mm	1120*640*870
Gross Weight	kg	242
20 FT		36
40 HQ		108



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TECHNICAL DEFINITIONS AND PRINCIPLES



SILENT TYPE - AIR COOLED DIESEL GENERATOR

SOG 17000 PB3

**ADVANCED TECHNOLOGY
HIGH PERFORMANCE
RELIABLE QUALITY**



ATS (Automatic Transfer Switch)



PERFORMANCE

Frequency	Hz	50
Rated Voltage	V	400
Rated Power	kW - kVA	15 / 15
Max. Output	kW - kVA	16 / 16
Rated Current	A	22
Phase Number		Three Phase
Alternator		100% Copper brush type, AVR
Starting System		Electric
Noise Level (at 7m)	dB	78
Fuel Tank Capacity	L	30

ENGINE

Model		2V98F
Engine Type	Two-Cylinder , Vertical 4-Cycle, Air Cooled diesel	
Bore *Stroke	mm	98*88
Displacement Capacity	cc	1,326
Fuel	(Summer) -10# (Winter), -35# (Chill Cold) Diesel	
Lubrication Oil Volume	L	4
Combustion System		Direct Injection



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Star Generator makes them ideal for a variety of environments where noise reduction is required or desirable.

With various models offering different power outputs, they cater to both small-scale and large-scale power needs, ensuring dependable performance and efficiency.

DIMENSIONS

Packing (L*W*H)	mm	1200*690*895
Gross Weight	kg	297
20 FT		26
40 HQ		93




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OPERATING THE DIESEL GENERATOR

CHAPTER 2: OPERATING THE DIESEL GENERATOR

2-1 Important safety points when operating the generator

 Before starting the diesel generator, please read the manual. Particular attention should be paid to the following points.

2-1.1 Fire prevention

Engine fuel is diesel. It is forbidden to use gasoline, kerosene, etc. In case of oil overflow, please use a clean cloth to remove the oil. The diesel generator is not allowed to be exposed to gasoline, kerosene, matches and flammable materials, because the temperature around the muffler is very high when the engine is running. To ensure better ventilation during generator operation, the distance between the diesel generator and the building should be more than 1.5 meters. Otherwise, oil will overflow from the diesel generator.

2-1.2 Preventing exhaust gas suction

To avoid exhaust gas being absorbed by the person, the diesel generator should not be operated under worse ventilation conditions, because the exhaust gas emitted from the engine contains harmful CO.

2-1.3 Preventing damage to high temperature parts

While the diesel engine is running, high-temperature parts such as the muffler and housing should not be touched.

2-1.4 Preventing electric shock or short circuit

To avoid electric shock or short circuit, it is forbidden to touch the generator with hands when it is working. Do not operate the generator in rainy or foggy weather.

To prevent electric shock, grounding should be done by matching the cable with one end connected to the grounding terminal of the generator and the other end to the outside device. The generator's ground terminal is located on the control panel shown in Figure 2-1.



2-1.5 Other security points

It is very important to know how to stop the generator and the functions of all switches. Untrained persons should not operate the generator. The operator must wear safe clothing and shoes while working.

2-1.6 Charging the battery

The diesel generator has automatic charging function. The battery's electrolytic fluid contains sulfuric acid. Appropriate protective measures must be taken to protect the operator.

Since the hydrogen released from the battery is an easily explosive gas, do not smoke while charging. Avoid sparks around the battery.

Make sure there is ventilation for charging here.

2-2 Preparation before operation

2-2.1 Fuel selection

Fill the diesel fuel tank to full level. If there is water in the diesel, drain the water from the oil/water separator. Otherwise, water will enter the fuel pump and cause engine failure.

Overfilling the fuel tank is dangerous. Do not exceed the red filter level on the filter.			
Model	SDG10000PB	SDG10000PB3	SDG17000PB3
Effective capacity of fuel tank (L)	15	15	30

WARNING: Overflow is very dangerous.

NOTICE:

Do not smoke and avoid sparks when refueling or storing. Overflow should be prevented when adding fuel. After filling is completed, the tank tap should be tightened tightly again.



2-2.2 Using the oil/water separator

When diesel contains water, the diesel generator is equipped with oil/water separator to separate the water. Just screw the separator tap in the left direction to drain the water, as shown in Figure 2-3.

WARNING: After the water is prepared drain, screw the tap in the correct direction to prevent diesel oil leakage.



Oil/water separator

Figure 2-3

Figure 2-4



Lube oil coarse filter

Fuel switch

Lube oil dipstick

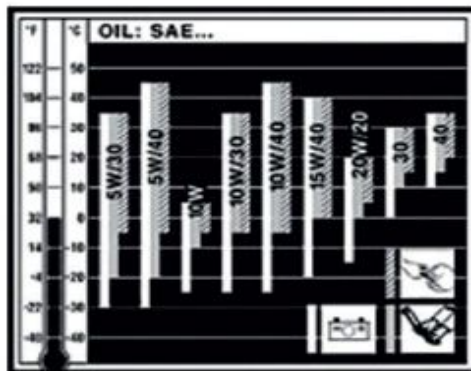
Speed limiter

Low speed position

High speed position

2-2.3 Mineral oil filling

NOTICE: 1. Before starting, you must first turn on the fuel switch to prevent air from entering the fuel pump under the condition that there is no fuel in the piping.
2. Before starting, move the speed lever to the "RUN" position. If the generator will not be used for a long time, please move the lever to "STOP" position



A. Lube oil quality

Qualified mineral oil must meet the following conditions.

- ACEA-B2/E2 or higher grade specification
- API-CD/CE/CF-4/CG-4 or higher grade specification

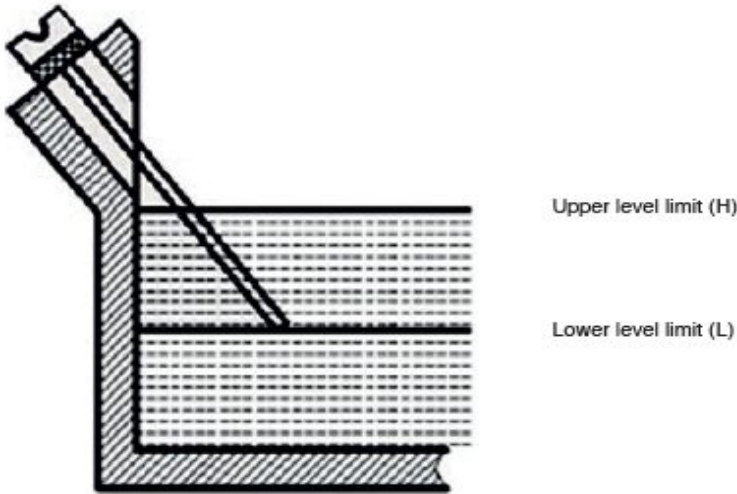
If low quality mineral oil is used, the mineral oil should be changed after every 150 hours of operation.

B. Lubricating oil viscosity

When operating in cold temperature, select the lubricating oil viscosity according to the ambient temperature.

Opening to be Used for Mineral Oil Filling

Place the generator on a flat surface, then fill the oil through the dipstick opening. oil level
When checking, simply screw the dipstick into its seat.



It is very important to pay attention to the quality of lubricating oil, because it will affect the performance and reliability of the engine. If low quality or impurity oil is used or the oil is not changed in fixed time, it will cause parts such as piston, cylinder, bearing and other moving parts to wear easily. Engine life will be greatly shortened.

It is very important to pay attention to the quality of lubricating oil, because it will affect the performance and reliability of the engine. If low quality or impurity oil is used or the oil is not changed in fixed time, it will cause parts such as piston, cylinder, bearing and other moving parts to wear easily. Engine life will be greatly shortened.

20 hours initially



Next three times
every 100 hours



Later
every 200 hours

Lube oil change Interval

You should check the oil level every time you start the generator and add oil if it is not sufficient. Draining the oil can be done immediately after stopping the engine because it is difficult to drain the oil completely when the engine is cold, as shown in Figure 2-5.



Lube oil fine filter

Drain bolt

Drain chute

2-2.4 Check air filter

- A. Remove the bolt and pull out the side plate.
- B. Loosen the latch to remove the air filter cover.

It is forbidden to clean the filter with detergent. When the output power drops or the exhaust gas becomes black, you should replace the filter.

The generator is not allowed to be operated without an air filter, otherwise it will cause the generator to burn easily.

- C. After installing the element, replace the air filter cover and retighten the latch firmly.

2-2.5 Check the generator

Be sure to turn off the main switch to cut off loads such as lamps and motors.

Before starting the generator, you must turn off the main switch. If it is not in this position, it is very dangerous to start the generator with load.

The generator must be properly grounded to prevent electric shock.

2-2.5 Checking fuel pipes

Fuel and oil have been removed before delivery. When refueling, check whether there is air in the pipes before starting. If there is, it should release the air by unscrewing the fuel pump until no air bubbles come out of the diesel, and then tighten the screws again.

2-3 Checking and starting the engine

2-3.1 Checking the lubricating oil level

Check the lubricating oil level before each start-up. If the engine starts with a lack of oil, the oil temperature rises rapidly and the engine shuts down. If the engine runs below sufficient oil level, it is very easy to burn oil. Increased speed causes damage to the engine. Therefore, it is very important to ensure that the oil level of the dipstick is between the upper limit and the lower limit.

2-3.2 Trial run

The new engine initially requires 20 hours of running-in work.

- A. Avoiding overload

Overload should be avoided during the test run.

- B. Lube oil change at certain periods.

Replace after the first 20 hours of operation and refer to the user manual for the next replacement.

2-4. Starting the generator

2-4.1 Preparation before you start

- A. Turn the fuel switch to the "ON" position.
- B. Turn the engine speed adjuster to the "RUN" position.

2-4.2 Operation

- A. Turn the switch to "OFF" position.
 - B. Move the speed control lever to the "RUN" position.
 - C. Turn the key clockwise to the "START" position.
 - D. After successful start-up, take your hand off the switch so that the switch automatically turns to "OPEN" position.
 - E. If it cannot be started within 10 seconds, please wait 15 seconds for the next start.
- If the starter operates for too long, the battery voltage will drop, causing the engine to stall. During operation, make sure the switch is in the "ON" position.
- F. If the control panel is smart type, please also refer to its manual.

WARNING: If the engine runs for too long, the battery voltage will drop, causing the engine to lock up. During operation, make sure the switch is in the "ON" position.

When it is difficult to start the engine in winter, you can add 2 ml of mineral oil to the gas inlet passage. It is very important to re-tighten the dipstick firmly before starting. Otherwise, engine parts will wear out due to rain, dust and other impurities.



Figure 2-8

2-5 Battery

If the battery is of the liquid additive type, the electrolytic level should be checked every month. The engine cannot be started when the level is low. Therefore, it is necessary to add distilled water up to the prescribed limit.

If the electrolytic level is high, the liquid will overflow and corrode nearby parts. It is very important to keep the electrolytic level at the prescribed level. During operation, the generator can automatically charge the battery. If the generator is used for stand-by application, it must charge the battery.

If the battery is a valve-controlled lead-acid type, it will be charged as needed.

2-6 Starting the Generator

2-6.1 Starting the engine

- A. Check the oil level. If the level is low, add oil to the prescribed level.
- B. Pre-warm the engine for three minutes without load.
- C. Do not modify the fuel quantity controller or speed limiter (set before delivery). Otherwise, the performance of the motor will be affected, as shown in Figure 2-4.

2-6.2 Checking during work

- A. Check if there is any abnormal sound or strong vibration here.
 - B. Check if the engine is running faulty.
 - C. Check the color of the exhaust gas, black or very white.
- If any of the above occurs, you should stop the generator and then contact the local dealer or manufacturer directly.

2-7 Adding Load

2-7.1 Load

Add the load according to the prescribed information.

2-7.2 AC application

- A. When starting the generator, you should keep the indicator light on to observe the working status.
- B. The generator must be run at rated speed (turn the speed control lever to "RUN" position). Otherwise, the voltage, frequency and power will be lower than the rated limit shown in main specification information 1-1.
- C. When the voltage display on the control panel reaches $\pm 10\%$ of the nominal limit, load can be added
- D. The table below shows load usage.
- E. All kinds of machines must be connected to the generator in sequence. In case of incorrect operation, the generator will operate erratically. In this case, turn off the generator switch in time to discharge the load, and then check the problem. Then start the generator again after a few minutes. If the voltage meter

NOTICE: Do not operate more than two machines at the same time. Just run them one by one. Do not use the projectors if there are other loads at this time.

2.7.3 DC application

- A. When using an automatic type battery, disconnect the cable at the cathode of the battery while charging.
- B. Start diesel generator.
- C. Connect the charging cable between the battery terminal and the generator anode. Pay attention to the anode and cathode, otherwise the generator and battery will be damaged.

Do not let the two terminals touch each other, this will cause a short circuit.

When charging large capacity batteries, the charging current should be less than 8 Amperes. Otherwise the fuse will blow.

- D. During charging, the battery will produce flammable gas. For this reason, there should be no sparks, flames and cigarettes around it. To prevent sparks near the battery, first connect the battery and the charging cable before charging, and in case of malfunction, first disconnect the cable from the generator.
- E. Charge the battery in a better ventilated place. Open the battery cover before charging. If the electrolyte temperature is above 45°C, it should stop charging.

CHAPTER THREE MAINTENANCE OF DIESEL GENERATOR

3-1 Periodic maintenance

It is very important to perform maintenance at certain periods for the generator to operate regularly. Diesel generator consists of diesel engine, alternator, control panel, chassis and similar parts. Please read the relevant manual for maintenance. Stop the engine before servicing the generator because engine exhaust contains harmful CO.

Process \ Period	Daily	20 hours	100 hours	200 hours	500 hours	Annual or 1000 hours
Check fuel	○					
Clean fuel tank					○	
Oil leak Check	○					
Each link Check					● Cylinder head tighten the bolt again	
Change lube oil		○ (first time)	○ (next three times)	○		
Air filter clean element	(in dustier conditions increase maintenance frequency)			○	○ (change)	
Clean fuel filter			○		○ (change)	○ (change)
Fuel pump Check					●	
Clean the syringe					●	
Fuel pipe Check					● (change if needed)	
Adjust intake/exhaust valve clearance						
Grind the intake/exhaust valve		● (first time)				●
Piston ring replace						●
Check battery electrolyte or voltage	(every month)					

PS: The quality period of the syringe and the syringe pump is 1500 hours or 2 years. The ● sign here means that it can work with special equipment or be checked by an authorized dealer.

Clean the generator immediately after stopping it to prevent corrosion and remove deposits.

NOTICE: The "I" sign indicates the private key to be used. Please contact the place where you purchased the product.

3-1.1 Change lube oil

20 hours for the first voyage and 100 hours for the next three voyages and 200 hours for normal operation. While the engine is warm, loosen the oil drain plug located at the bottom of the cylinder block. After removing the used mineral oil, screw on the plug and add the recommended level of oil.

3-1.2 Replacing the air filter

Do not clean the filter with detergent.

Time range 50 hours

3-1.3 Replace fuel filter

Clean the fuel filter frequently to ensure the engine can deliver maximum power.

Time range 100 hours

A. Turn off the fuel switch.

B. Replace the component by loosening the oil/water separator caps.

3-1.3 Replace fuel filter

Clean the fuel filter frequently to ensure the engine can deliver maximum power.

3-1.4 Recheck the tightening torque of the cylinder head bolt with the special tool shown in the engine manual.

3-1.5 Check injector and fuel pump

3-1.6 Adjust the clearance of the intake/exhaust valves

3-1.7 Grind intake/exhaust valves

3-1.8 Replace piston rings

A special tool is needed and care must be taken to protect it.

3-1.9 Check electrolytics and charge battery

The 12V accumulation used in the motor will consume electrolyte due to continuous charging and discharging.

Check the battery before starting. If necessary, distilled water can be added up to the prescribed limit. If the battery is damaged, replace it immediately.

Check battery electrolyte

once a month

3-2 Storage

NOTICE: If the generator will not be operated for more than three months, it should be preserved. After being stored for six months, it should be put into operation again as follows.

A. Drain fuel and lube oil.

B. Clean dust and oil.

C. Clean the crankcase and gear housing with diesel and kerosene. Then drain it.

D. Add corrosion-protected oil or anhydrous mineral oil (heat the mineral oil to approximately 120°C until no foam remains) into the crankcase at the recommended level. Then run the engine for three minutes to allow the oil to cover the surface of all moving parts. After the engine stops, the last drop of oil is drained.

E. Inject corrosion-resistant oil or water-free mineral oil into the intake manifold, and then quickly spin the engine. Make sure the intake/exhaust valve is closed.

F. Clean the cylinder head cover and brush rocker arm, etc., using a few rust-proof oil or waterless lubricating oil. dismantle Wrap the air filter and muffler with wet-proof paper to prevent dust and moisture ingress.

G. Clean dust and oil on the chassis and control panel.

I. Remove the key.

J. The generator should be stored in a place with good ventilation, clean, dry and free of corrosive materials.