



STARK GEN

THE POWER OF YOU

www.starkgen.com



DIESEL GENERATOR USER AND MAINTENANCE MANUAL



DEAR USER OF STARKGEN GENERATOR

We thank you for choosing STARKGEN Generator set.

Please pay attention to instructions and warnings in the user manual to use your generator set with full performance and for a long time.

This user manual has been prepared to help users benefit from the generator easily. When the device is used in accordance with instructions in the user manual, it is under the guarantee as it is specified in the guarantee certificate for 1 (one) year or 1000 hours. Failures occurred due to any change executed on the generator without consent of the manufacturer or uses of non-original spare parts in the device are excluded from the guarantee.

Our generators are supplied to end users after the precise tests and other quality control steps following particular production processes implemented by our skilled team.

We strictly recommend you read and observe warning tags on your generator and take the safety precautions enumerated in the user manual to prevent any damage or accident.

Periodic maintenance works should be done to use the device more efficiently and for a long time. You may execute periodic maintenance agreements with one of our authorized technical services for this purpose.

INTRODUCTION

STARKGEN GENERATOR groups has been designed taking the security of life and property at utmost priority.

The User and Maintenance Manual has been prepared to help the user benefit from the generator easily and make its maintenance. All instructions in the manual should be taken into consideration to install, maintain and operate your generator with maximum performance and safety for years. Get qualified and skilled people to carry out your generator set's installation, maintenance and settings. If you have to use your generator in dirty and dusty environments, have its maintenance done more frequently to ensure regular operation of the device. Every generator has a label on its frame which indicates model and serial numbers besides production date, voltage, amperage, frequency, power factor and weight data. This label, located on the lateral side of the control panel, has been attached to help you get maintenance service and demand spare parts for your generator.

STARKGEN		MADE IN TURKEY	
THE POWER OF YOU		CE	
GENERATOR MODEL		SERIAL NUMBER	
JENERATOR MODELİ		SERİ NUMARASI	
ESP	(KVA)	ESP	(KW)
STAND-BY GÜÇ		STAND-BY GÜÇ	
PRP	(KVA)	PRP	(KW)
PRIME GÜÇ		PRIME GÜÇ	
POWER FACTOR		ESP CURRENT	(A)
GÜÇ FAKTÖRÜ		STAND-BY AKIM	
PHASE		MANUFACTURING DATE	
FAZ		ÜRETİM TARİHİ	
ENGINE MODEL		ENGINE S/N	
MOTOR MODELİ		MOTOR S/N	
ALTERNATOR MODEL		ALTERNATOR S/N	
ALTERNATOR MODELİ		ALTERNATOR S/N	
VOLTAGE	(V)	FREQUENCY	(Hz)
VOLTAJ		FREKANS	
RPM		WEIGHT	(KG)
DEVİR		AĞIRLIK	

STARKGEN ENERJİ JENERATÖR İMALAT SANAYİ VE TİCARET A.Ş.
HANLI SAKARYA MAH. SATSO CAD. NO: 33/21 ARİFYE/SAKARYA-TÜRKİYE

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| SAFETY PRECAUTIONS

The Generator set has been designed for being safe in case it is used in accordance with technical guidance. However, the safety responsibility is on the operators and servicemen of the generator. If the specified safety precautions are applied, there might be a small possibility of an accident. Before any technical operation or maintenance, the relevant operator or serviceman is responsible for taking appropriate safety precautions.

Before a maintenance or operation, read all recommendations and warnings in the manual and apply them. If the safety precautions are observed, accident possibility will be reduced. Never operate the generator if there is an unsafe condition which is known or anticipated previously. In case an unsafe condition is noticed about the generator, put a warning sign on the device and detach the negative pole of the battery and isolate it. Prevent the generator from being operated and keep the negative pole (-) isolated from the battery till maintenance and cleaning work is executed.

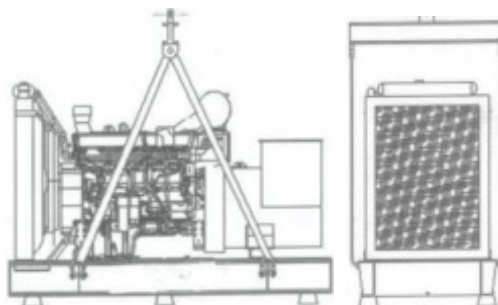
The generator should be operated as per the instructions, taking into consideration the warnings and only by skilled and qualified persons.



| MOVING THE GENERATOR

The frame of the generator is designed to make its transportation easy. Lifting the generator improperly may cause serious damage on the components. The generator should be lifted by a forklift or crane by grasping the frame carefully. Do not push the frame directly by forklift forks; place a wood buffer between the frame and the forklift to prevent any damage. The generator should be lifted with a proper forklift or crane as per its weight. Do not use engine and alternator lifting points while lifting the generator. Use appropriate lifting equipment on specific lifting eyes on the basframe to lift the generator. Make sure that the lifting equipment and support elements are strong and able to lift the generator safely. The weight lifting capacity of the lifting tool should be 10% more than the generator's weight.

When it is lifted, the personnel must be kept away from the vicinity of the work area. Absolutely use lockable hooks and shackles to lift with a crane. When the generator is raised from the ground, it should be prevented from rotating by means of guide ropes. Do not drag along the generator when moving. For this task, you may slide it on a roller iron or steel pipes that you can lay between the frame and the ground. Make sure that the ground on which the generator will be landed is a smooth and level surface and able to bear the generator's weight.



CHEMICAL SUBSTANCES, FIRE AND EXPLOSION

Fuel tanks of the generators are made in accordance with the appropriate standards. Nonetheless, fuel used in the generators can blaze up and explode. Taking the needed safety precautions in storing places reduces the ignition, explosion and fire risk. It should not be allowed to smoke or fire up nearby the fuel storing areas or produce any danger similarly. Firefighting devices such as BC or ABC class extinguishers should be placed in the area where the generator is used. The personnel should be trained on how to use of these extinguishers.

Oils, fuels and cooling fluids and accumulator electrolytes used in the generators are industrial type products. They can injure workers if they are not used properly. Avoid skin contact with the oil, fuel, coolant and the accumulator electrolytes and do not swallow such liquids. If they are swallowed by accident, immediately seek medical help. Do not try to make the person vomit. In case those substances contact with the skin, wash the contaminated skin area with soapy water and apply a protective skin cream. Do not wear oil or fuel contaminated apparels. Ventilate the generator's room adequately. Keep your generator and its ground and room clean. If the fuel, oil or accumulator electrolyte spill, immediately clean the area with industrial cleaning materials.

Do not put the inflammable liquids near the engine. When preparing the accumulator, wear an acid protective apron, face mask and goggles. Before using conductive tools on the accumulator, take off your rings and bracelets, etc. if there are. If the accumulator electrolyte spill on your skin or apparel, immediately wash the contaminated area with pressurized water. Before connecting or disconnecting the accumulator, cut off the accumulator charger or unplug it. For avoiding electric arc, keep the grounded conductive objects away from areas of electric hazard. Sparks or electric arc may ignite the fuel. If there is leakage from fuel pipes, get them fixed immediately.



MECHANICAL PARTS

The generator has been designed and produced with a casing to make the operators around protected from shifting parts. However, safety precautions should be taken while working in the generator area for keeping the generator and the staff safe against other mechanical hazards.

Warnings;

- Do not operate the generator when the safety casing has been removed. Do not attempt to reach near or under the casing while the generator is on for maintaining it or any other reason.
- Keep your hands, arms, long hair, apparel skirts, etc. away from shifting parts of the generator.
- Some shifting components cannot be easily seen, watch out! If there is a generator room, keep its door closed or locked.
- Avoid contacting with hot fuel, hot coolant, hot exhaust smoke, hot surfaces and sharp edges.
- Wear gloves, a protective hat and apparel before starting to work in the generator area. Do not open the filling lid of the radiator until the cooling liquid gets cool.
- Before completely opening the lid of the radiator, loosen it slowly to reduce the vapor pressure.



ELECTRIC DEVICES

Safe and efficient operation of electric devices can be achieved by proper installation, correct use and regular maintenance of such devices.

Warnings;

- The generator should be connected to the power system in accordance with the appropriate electricity codes and standards by a well-educated and qualified electrician.
- Make the generator grounded and measure its grounding resistance to make sure that the grounding is enough. Stop the generator before connecting or disconnecting the load to the generator and cut off the negative pole (-) of the accumulator.
- Do not touch the conductive parts on the generator, connection cables and electrical parts with your hands or your body or a non-insulated object.
- Recap the alternator terminal's cover after making connection or disconnection of load.
- Do not operate the generator unless the cover is safely fitted.
- Connect the generator to the proper electric charges and power systems in comply with its technical characteristics.
- Keep all electric devices clean and dry. Replace the parts or wiring where the isolation is broken, worn out or cracked.
- Replace the terminals that are worn out, rusted or faded.
- Keep the terminals clean, and the connections fastened.
- Make all connections and idle cables isolated.
- Use BC or ABC class extinguishers in case electric fires.

NOISE

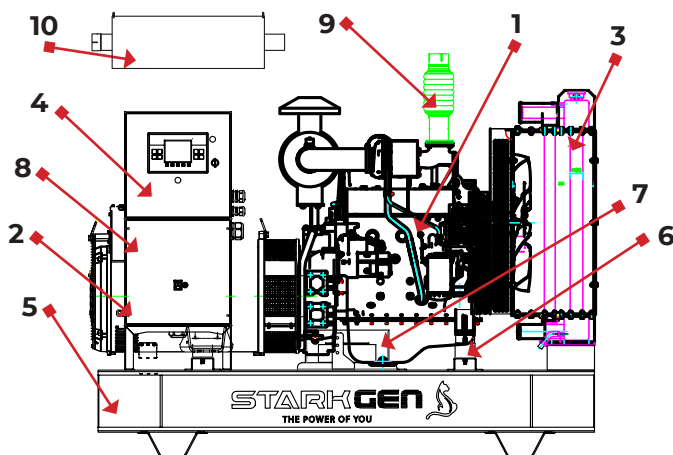
Noise intensity of the generators which are not equipped with the noise isolation cabin is more than 105 dBA. Long time exposure to a noise intensity level over 85 dBA is dangerous for hearing. It is necessary to use ear muffs while working nearby the generator area.

EXHAUST GASES

Inhaling the engine exhaust gases is perilous for human being. Exhaust gases coming from every kind of generators located in a closed area should be discharged by means of leak-proof pipelines which comply with the appropriate standards into the areas with no people. Keep hot exhaust muffler and exhaust pipe away from inflammable substances and make sure that needed safety precautions are taken for the personnel. Do not operate the generator in a system with gas leakage.

GENERATOR SET AND IT'S COMPONENTS

Generators with the trade mark of STARKGEN are produced using the diesel engines and alternators which are internationally acknowledged and comply with the appropriate standards. There are many diesel engines and alternators with different trademarks, models and powers that can be chosen in accordance with the operation conditions. Main parts of a generator set are shown below:



No	Definition
1	Diesel Engine
2	Alternator
3	Radiator
4	Control Panel
5	Baseframe
6	Anti Vibration Mountings
7	Battery
8	Load Connection Panel
9	Exhaust Compensator
10	Silencer

DIESEL ENGINE

STARKGEN GENERATOR uses heavy-duty diesel engines in production of his generators which are manufactured for generators, comply with the international standards and do not need any change to be done by the end user. Our generators are equipped with four stroke engines with precision speed control, low fuel consumption, mechanical or electronic governors as per the power required, water cooling or air cooling optionally.

Electrical system of the diesel engines employed in the generator uses direct current with 12 V or 24 V.

One battery for generator sets with 12 V and two batteries for ones with 24 V are supplied with the generator. Diesel engines are designed to work safely and their filters can be replaced.

ALTERNATOR

Alternators used in Starkgen generators are in the protection standards of IP 21, IP 22 and IP 23, brushless, and have internally cooling systems and single or double bearing. Winding mode of the alternators that are with high efficiency, precision regulation and self-warning system complies with AVR's used.



THE FRAME AND FUEL SYSTEM

Daily fuel tank of the generators has been designed for operation of 8 hours with full load and placed in the frame. Fuel supply and return connections have been made. The tank has an electrical fuel level sensor so that the user can monitor the fuel level on the control panel. A fuel discharge plug is installed for clearing out the tank so that cleaning operation can be done. Fuel temperature is an important parameter for efficient operation. If fuel temperature increases above 71 °C, it leads expansion and the heat capacity per unit volume lessens, so the engine's output power reduces. For the generators over 850 KVA, an optional external fuel tank should be installed. Connection pipe between the main fuel tank and daily fuel tank should be equal to or larger than daily tank feeding pipe. Fuel pipelines should be made of black pipes; galvanized pipes are not suitable. The fuel should be clean and not contain water or any abrasive fluids in it. It is recommended to install a water separator fuel filter between main tank and daily tank. Otherwise the injector, pump and actuator may have failures.

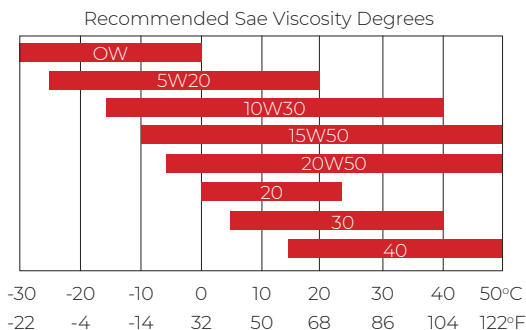
LUBRICATING SYSTEM

Lubricating system of diesel engines is one of the most important parts in the engine. Appropriate engine maintenance (fuel replacement periods, filter replacement periods and choosing the right oil type should be observed) extends the lifetime of an engine and reduces the utilization cost of it.

Engines are lubricated with the oil pumped into critical points by means of the oil pump; lubricating oil forms a protective layer in the bearings and between the cylinder groups and piston rings and among other moving parts. This oil layer reduces friction between metal surfaces by isolating them from each other. It is possible to maximize the engine power using the right oils that lessen the pumping energy used by the lubricator pump and friction among the moving parts of the engine, and to minimize the friction losses. A high quality four season lubricating oil reduces oil consumption in 2-3% comparing to a one-season oil.

If the operation medium's temperature is higher than 15 °C, lubricating oil with the viscosity class SAE 15W/40 should be preferred in all engines.

For other diesel engines, SAE 15W/40 or SAE 20W/50 diesel lubricating oils should be used.





MUFFLER AND THE EXHAUST SYSTEM

The purpose of an engine exhaust system is to discharge the exhaust smoke out of the room for preventing it from danger and discomfort, and to lessen the noise. An appropriate exhaust muffler is installed in the exhaust pipe of the engine to lessen the noise level. Exhaust pipeline should be short and level as soon as possible to lessen the back pressure. A flexible buffer should be placed between the exhaust manifold and the exhaust pipeline to prevent the motor's vibration to be transmitted to exhaust pipeline and the building. Exhaust pipeline should be supported by surrounding parts to hinder its load for being the dead weight on the outlet of the exhaust manifold and turbo charger. The weight of the exhaust system should be loaded on the building. A stretching element can be used for this duty. Flare type rain covers with reciprocal weights can be used for different applications to prevent the rain penetration into the exhaust outlet that is open. It is not allowed to unite two or more generators' exhaust outlets using a single exhaust pipe.

VIBRATION BUFFERS

Vibration buffers are used on the connection points of the alternator set to the frame and between the frame and the floor in order to hinder generator parts from coming loose and shocks that may occur on the ground when the generator is operated. Vibration buffers are chosen in accordance with the weight of the device to minimize the vibration and to use the device for a long time without any problem.

BATTERY

Batteries provide the needed electric energy to activate the electric starter while starting the engine first time. They should be placed as near as the generator. If the batteries are put at distant points from the generator, this will cause power loss resulting reduction in the starting capacity of the batteries.

Batteries with less charge cannot start the engine well in cold weather. More power is needed to start an engine up in cold weather than that of the normal weather conditions.

Oxidation may occur on the poles and connection points of the battery in process of time. Oxidation causes abrasion on the poles and prevents charging.

Maintenance of the battery

- Keep the top of the battery and its terminals clean.
- Coat the battery terminals and connections with Vaseline carefully.
- Screw the terminals adequately. (Do not over screw)
- Check the electrolyte level regularly. This level always must be 10 mm over the plates. (no need to check this for maintenance free batteries)
- Pay attention to the battery for not being discharged.

Take the needed safety precautions while working on batteries.



| CONTROL AND TRANSFER PANEL

Electronic systems are used to control and monitor the operation of the generator. Automatic control panel which will run the generator automatically in case of mains failure is used on STARKGEN GENERATORS as a standard. The control panel allows monitoring the operation and shutting down of the generator as well as state of the operation and output values. It also stops the generator automatically in the condition of low oil pressure, high motor temperature and other failures. The user must know well how to use the control panel and functions of its elements. Indicators of the panel should be observed from time to time while the generator is on. In this way, it may be possible to intervene in the operation of the generator before a serious problem arises in an extraordinary situation.

Automatic transfer panels are used in automatic generators to provide the network-generator transfer. External automatic transfer systems are used for the generators.



| DETERMINING A PLACE THE GENERATOR AND INSTALLATION

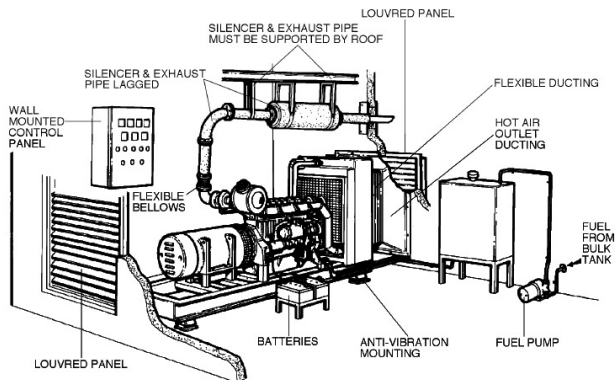
Choosing the place where the generator set will be installed is very important for a high-performance and safe generator operation. Adequate ventilation should be done in the area where the generator is operated. The place of the generator should be protected against environmental facts such as rain, snow, hail, flood, sunlight, freezing cold, excessively hot weather, etc. It should be covered against dust, oily smoke, steam and other abrasive substances and electric conductivity providers that can be carried by air flow.

If the generator is operated in open air, a canopy type generator should be chosen and the necessary precautions should be taken to protect the device against weather conditions. For cooling and maintaining of the generator, at least a two meters space around the generator and a one meter-space above the generator should be left. There should be a proper road to carry the generator in its room or place. Unauthorized access to the generator should be restricted.

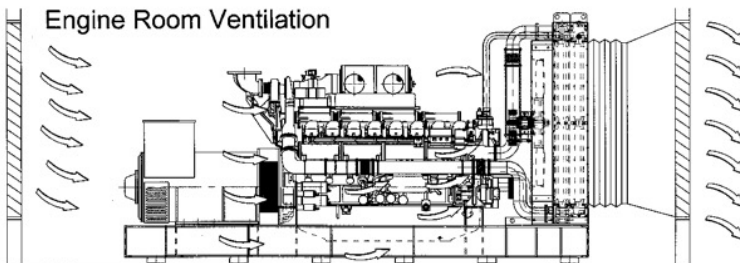
A special concrete pedestal is not necessary to put the generator on, a smooth ground is adequate. However, for places with standing water or moisture such as a boiler room, it is recommended to put the generator set on a platform raised from the floor.

It is required to Jet fresh air intake to the place of the generator and outlet of the hot air of the engine to the open area for getting more efficient engine operation and protecting overheating.

ENGINE ROOM LAYOUT



ENGINE ROOM VENTILATION





ELECTRIC CONNECTIONS OF THE GENERATOR AND START UP

Please have the electric connections of the generator done by authorized professionals and make sure that the safety precautions are observed. Power cables' load flow should be calculated as per the operation voltage and the distance between the generator and the load. The generator and the transfer board should be placed so that the interconnecting cables can be as short as possible. The phase order should be determined in three phase systems in the present network and the phase order should be controlled before the energy of the generator is released to the load afterwards the generator connections.

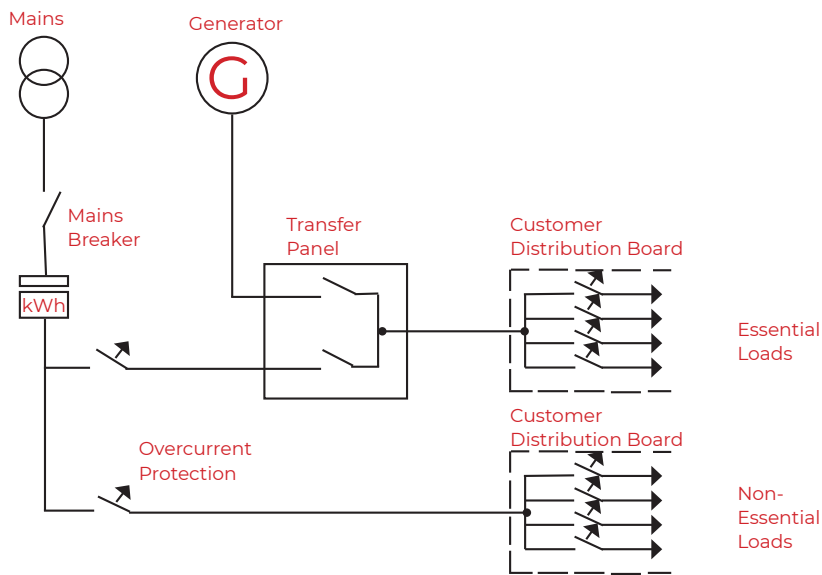
For generator - mains transfer, a transfer panel should be used. The generator set and the transfer panel should be grounded before operating. Never operate the generator unless the grounding installation is made. Grounding is required and useful to protect people against electrical hazards and to make the electronic control devices more efficient.

Grounding is carried out by sticking copper electrodes or plates in the earth which are also connected to the generator frame through a copper conductive with appropriate cross section. Grounding plates are preferred for high-power generators. The voltage between a phase and the earth should not go beyond the system voltage in a well-executed grounding. The best grounding resistance is between 1 ohm and 5 ohm. The cross sections of power cables and grounding cables to be chosen as per the generator power are given in the table of cable choosing.

INSTALLATION OF THE TRANSFER PANEL

The important points to be taken into consideration when the transfer panel is installed:

- Place the transfer panel as near as possible to the emergency load panels.
- The transfer panel should be located in a clean, dry, well-ventilated place which is away from excessive heat. When the medium temperature increases over 40 °C, fuses and switches will open more rapidly. There should be an adequate working area around the transfer panel.
- The current values taken from the generator should be equally distributed to the three phases as much as possible. The value to be taken from one phase never can exceed the nominal current value.
- If the transfer panel is separated from the generator, the transfer panel is placed near the distribution panel as much as possible. In this case, power cables are installed from the generator, from the network panel, from the emergency load panel to the transfer panel. Furthermore, a control cable of 7x2,5 mm² should be installed from the generator control and start panels to the transfer panel.



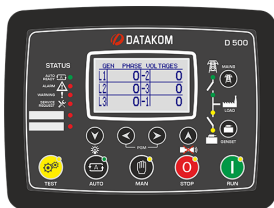
OPERATING THE GENERATOR

Make the final controls of the generator set before the device is operated, and follow the appropriate safety precautions.

- Check the levels of engine oil and cooling fluid and fill the fuel tank.
- Turn the fuses and the load out switch (if there is) in the panel to off (O) positions.
- Discharge the air in the fuel system via a manual fuel pump on the engine.
- Control the charge of the battery and connect the poles starting with the positive pole (+) and then the negative one (-).
- Turn the fuses in the panel to on (I) position and open the emergency stop button by turning right if it is pressed.
- When the control panel is powered, check the warning LEDs by pressing the lamp test button.
- For operating the generator without load in the test position, press TEST button in the automatic models, and START button in the manual models.
- Check the voltage, frequency, oil pressure and temperature of the coolant when the generator is operated in the test position.

OPERATION OF THE AUTOMATIC GENERATOR SET

- If the generator is needed to start automatically in case of mains failure, the control panel will be in AUTO position.
- Generator control panel monitor the mains phases continuously; lower limit of the network voltage is set to 180 V, and the upper limit is set to 250 V as standard. When the mains voltage goes out those limits or the mains power is cut off, the generator operates automatically and gets the load within 10-12 seconds.
- When the mains power recover, automatic control panel monitors the mains parameters for 30 seconds. If the main parameters are between the limits, the control panel transfers the load to the mains and automatically shuts down the generator after a cooling operation for two minutes.
- There are alarm signals on the control panel. If one of them lights up, it means there is a problem on the generator set. In this situation, the generator may shut down automatically. Please check the trouble shooting page and after solving the problem, press the STOP button on the control panel and reset the system by pressing RESET button. Operate the generator on the TEST position, and then turn it to the AUTO position. The generator will shut down automatically after one minute.



OPERATING GENERATOR SET IN MANUAL MODE

- Check the required parameters to start up the generator set and take the safety precautions.
- Select Manual mode pressing MAN button
- Press START (I) button on control panel.
- The generator starts to work. Operate it in the idle position about 2 minute so that the engine gets warm and reaches normal speed.
- When you want to shut down the generator, press OFF button on the control panel.
- There are alarm signals on the control panel. If one of them lights up, it means there is a problem on the generator set. In this situation, the generator may shut down automatically. Please check the trouble shooting page and after solving the problem, press the STOP button on the control panel and reset the system by pressing RESET button.

TROUBLESHOOTING TABLE

Electric starter rotates the diesel slowly.	- Battery is discharged - Cables of the batteries are barely in contact. - Electric Starter is faulty
The engine doesn't produce enough power.	- Fuel pipe is plugged - Fuel filter is polluted - Air filter is polluted - Poor quality fuel - Exhaust pipe is plugged - Fuel pump is faulty - The governor faulty
The diesel engine works poorly or not at all.	- Electric starter cannot rotate the diesel - There is air intake in the fuel line - Fuel tank is empty - Fuel pipe is plugged - Fuel control solenoid is faulty - Fuel filter is polluted - The heater fails to work - Exhaust pipe is plugged - Poor quality fuel- - Fuel pump is faulty - The injector is faulty or out of adjustment - Oil sensor / switch or connection part is faulty
The engine works inefficiently	- Fuel pipe is plugged - Fuel governor is faulty - Fuel filter is plugged - Fuel pump is faulty - Air filter is polluted - There is air intake in the fuel system - Injectors are faulty or out of adjustment - Relief valves are out of adjustment
Oil pressure is too low	- Oil viscosity degree is wrong - Oil pump is faulty
Oil pressure is too high	- Oil viscosity degree is wrong - Oil pressure indicator is faulty
Generator works but does not produce electric	- Exhaust pipe is plugged - Cooling fan is defected - Radiator cores are plugged or pipes are dirty - Cooling system is insufficient - Oil filter or pipe is plugged - Injectors are out of order or out of adjustment - Heater system is out of order - Oil level in the sump is low - Fuse of the voltage card has blown - Voltage card is out of order - Diodes of the dynamo have blown
AVR works, but alternator has no voltage and no warning	- Connections are imperfect
Alternator voltage is low	- Voltage adjustment potentiometer is out of adjustment - Protection of the AVR is on - AVR is out of order - Check the cable connections of the AVR - Diodes are defective
Alternator voltage is high	- Voltage adjustment potentiometer is out of adjustment - AVR is out of order
Variable voltage	- Engine speed is variable - Check the cable connections of AVR - AVR is out of adjustment or out of order - Engine speed is variable - Check the cable connections of AVR - AVR is out of adjustment or out of order



PREVENTIVE MAINTENANCE FOR DIESEL GENERATORS

MAINTENANCE SCHEDULE FOR DIESEL GENERATOR	Daily	Weekly	First 50 Hours	250 Hours / 6	500 Hours / 1	1000 Saat / 2 Yıl
ELECTRICAL SYSTEM						
Check if there is alarm on the control panel	•					
Check the battery electrolyte, replace if necessary	•					
Check air intake and air thor of the alternator		•				
Check alternator voltages		•				
Run the genset on load		•				
Check if emergency stop button works properly			•	•		
Check the connection of load and battery cables			•	•		
Check the control cables			•	•		
Check if the battery charger works properly			•	•		
Check MPU and replace if necessary					•	
COOLING SYSTEM						
Check the coolant level	•					
Check if there is coolant leakage	•					
Check the engine fan	•					
Check belt tension	•					
Check if coolant heater works properly		•				
Check if the radiator fins are clean			•	•		
Check the coolant pipes and their clamps			•	•		
Lubricate the bearings of the fan				•		
check the bolts of the fan			•	•		
Replace the water filter if there is					•	
Replace the coolant					•	
Check the antifreeze degree					•	
Check the fan belt, Replace if necessary					•	
Check the Water Pump					•	

PREVENTIVE MAINTENANCE FOR DIESEL GENERATORS

MAINTENANCE SCHEDULE FOR DIESEL GENERATOR	Daily	Weekly	First 50 Hours	250 Hours / 6	500 Hours / 1	1000 Hours / 2
LUBRICATING SYSTEM						
Check the oil level	•					
Check if there is oil leakage	•					
Replace the oil			•	•		
Replace the oil filter			•	•		
Clean the crank breather				•		
FUEL SYSTEM						
Check the fuel level (It should be minimum 20%)	•					
Check if there is fuel leakage	•					
Drain the water inside the water separator if applicable	•					
Check the fuel hand pump if applicable		•				
Adjust the valve clearance			•		•	
Replace the fuel filter				•		
Drain the fuel tank and clean it					•	
Check the injectors. Replace if necessary					•	
AIR INTAKE AND THROW SYSTEM						
Check if the air intake is adequate		•				
Check the air leakage on the pipes			•	•		
Check the air filter. Replace if necessary					•	
EXHAUST SYSTEM						
Check if there is leakage on the exhaust system			•	•		
Check the color of the exhausts gas			•	•		
Check the turbocharger						•
OTHER CONTROLS						
Check if there is abnormal sound on the engine			•	•		
Clean the generator			•	•		
Check all the bolts if there are tightened properly			•	•		
Check if there is a loose part			•	•		
Check the anti vibration mountings visually					•	

Note1: This table is a general maintenance schedule for diesel generators.

Check engine maintenance schedule for more details.

Note2: Controls marked on the table should be repeated intervally.





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August 2023

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