格德鑫 GOLDX

Power frequency diesel generator technology, operation and maintenance

Instructions for use

Yangzhou gedexin mechanical and Electrical Equipment Co. , Ltd.

1. General description

1.1 Overview

Gedexin diesel generator as main power supply or backup (emergency) power supply, can be widely used in telecommunications, hospitals, troops, high-rise, buildings, mobile trains, road construction, mining enterprises, oil exploration and other related places.

The diesel generator can be configured according to the specific requirements of the users. Such as ordinary unit, Silent Unit, mobile unit, self-starting unit, "Three remote" intelligent control unit, multi-connected units and related ATS control screen, parallel control system.

GEDEXIN diesel generator is manufactured in accordance with GB2820-97"General technical requirements for power frequency diesel generator".

1.2 working conditions

The unit can output the specified power and work reliably under the following conditions:

Altitude: Om-lOOOm

B, ambient temperature: 5 ° C -40 C

(note: when the ambient temperature is below 5 ° C, the diesel engine should be started at low temperature, and the generator can work normally.)

C. Relative Humidity: 90% (25 ° C-RRB-

1.3 specifications and technical parameters

Unit specifications and technical parameters (see Table 1)

(Table 1)

规格 / 参数 / 数据	3 GF	5 GF	8 GF	10 GF	12 GF	15 GF	20 GF	24 GF	30 GF	40 GF	50 GF	64 GF	75 GF	80 GF	90 GF	100 GF
Rated power KW	3	5	8	10	12	15	20	24	30	40	50	64	75	80	90	100
Rated current A	5.4	9.02	14.5	18.1	21.7	27.1	36.1	43.3	54.1	72.2	90.2	115.5	135.3	145	162.4	180.4
Rated voltage V	400/230															
Rated frequency Hz	50															
Rated power factor COS Φ	0.8(lag)															
Rated speed R/MLN	1500															
Power supply system	Y connection method three-phase four-wire system															
No-load voltage rating range	Not less than 95%-105% rated voltage															
Voltage steady state adjustment rate%	≤ ± 7						≤ ± 5									
Voltage Stability Time S	-						≤3									
Voltage fluctuation rate%	≤1.5						≤1.5									
Frequency steady-state adjustment rate%	≤6						≤5									
Frequency Stability Time S	-						≤7									
Frequency fluctuation rate%	≤1.5						≤1.5									
Fuel consumption rate g/(kwh)	360			340			320			300			280			
Oil consumption rate g/(kwh)	5						4.5						4.0			

规格 / 参数	120 GF	150 GF	180 GF	200 GF	220 GF	240 GF	250 GF	300 GF	320 GF	350 GF	400 GF	500 GF	600 GF	630 GF	700 GF	800 GF	1,000 GF	1200 GF
Rated power KW	120	150	180	200	220	240	250	300	320	350	400	500	600	630	700	800	1000	1200
Rated current A	216.5	271	361	398.2	434.4	451	542	579.2	631.4	721.6	811.8	902	1083	1136.5	1264	1444	1805	2170
Rated voltage V	400/230																	
Rated frequency Hz	50																	
Rated power factor COS ϕ	0.8(lag)																	
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Frequency steady-state adjustment rate%	≤5																	
Frequency Stability Time S	≤7																	
Frequency fluctuation rate%	≤1.5																	
Fuel consumption rate g/(kwh)	280																	
Oil consumption rate g/(kwh)	4.0																	

Note: Fuel and oil consumption are reference values, depending on the type of matching diesel engine.

1.4 nameplate

GEDEXIN diesel generator all have a nameplate engraved with the unit model, unit number, unit parameters, production date and other data. The fuselage number is unique and the user must record the correct fuselage number and unit type on the service warranty card. In case of need of warranty service or need to purchase spare parts, the company should accurately provide the above-mentioned machine model and unit number. In order to obtain the unit more factory test parameters and technical information.

1.5 product certificate

The GEDEXIN diesel generator has a product certificate on the back of the random instruction to show that the unit has passed the inspection and test by the company's Quality Inspection Department and is allowed to leave the factory for users to use.

1.6 structure

The unit is composed of 95,100,102,105,110,112,130,135,150,170,190 series diesel engines, synchronous generators, control panel and chassis.

The unit is powered by a diesel engine, and the output voltage of the generator is controlled, monitored and adjusted by a control panel through an elastic ring, or a single bearing connecting plate, a pin, a coupling, and a drive generator, according to the different needs of users have manual, automatic, semi-automatic, automatic voltage regulation and manual voltage regulation, and external power supply.

The electrical system of the unit depends on the electrical principle of the assigned generator. If it has been explained in this specification, please refer to the generator specification for the unexplained details.

The main circuit is used as the power transmission circuit of the unit. It is drawn from the output terminal of the generator stator (U, V, W, N) to the wiring board. The wiring diagram is shown in figure L, 2,3,4, and is provided with the output of the control panel

The exits are (A, B, C, N) .

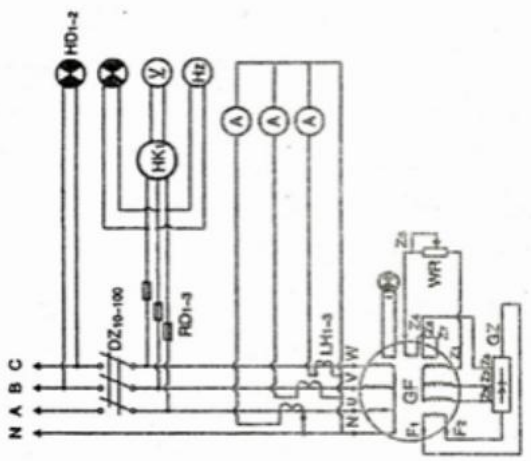


Figure1

STC 20 – 30KW

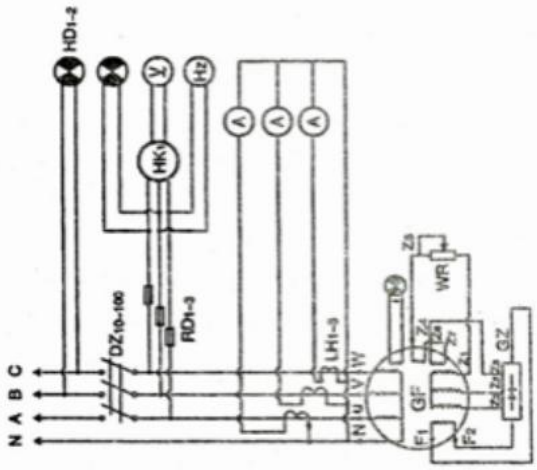


Figure2

STC 30 – 64KW

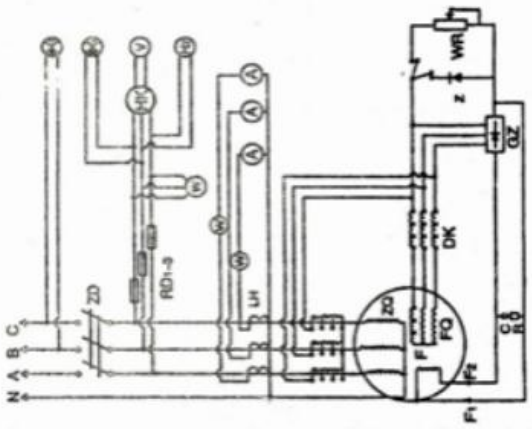
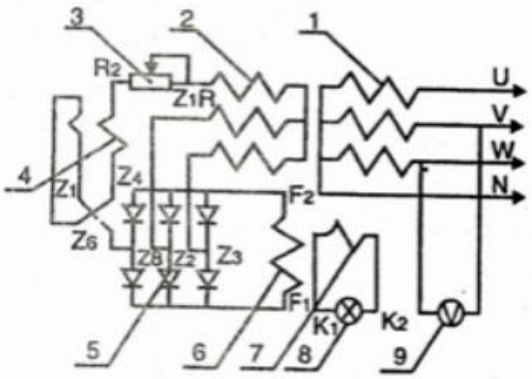
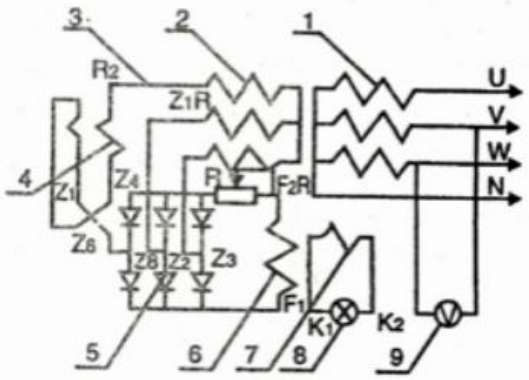


Figure3

75 – 1200KW



STC–3KW~24KW



STC–30KW~64KW

Figure4

1.6.1 description of the structure

The GEDEXIN diesel generator team selected different brands of diesel engines according to their different power levels and their performance advantages in a specific power range. Mainly have 95,100,102,105,110,112,130,135,150,1T70,190 series diesel engine, typical are Chongqing Cummins, Shanghai Diesel 135, Korean characters, Swedish Volvo, German MTU and other engines.

The GEDEXIN diesel generator not only requires first-class performance and a high degree of reliability, particular attention is paid to the technological advances of the selected engines in reducing exhaust emissions, reducing fuel consumption and noise control. A full range of diesel engines are available, including fans, water tanks, radiators, air filter, oil filters, Fuel filter, oil-water separators (some models have) , rechargeable generators, etc. . The automatic speed control system (mechanical or electronic speed control system, intelligent electronic injection control system) of the engine controls the speed of the diesel engine accurately and ensures the stability of the electric generator output frequency, all types of diesel engines, except those with very little power, are equipped with turbocharging systems to reduce the overall weight and increase horsepower output.

For specific diesel engine brand, model specifications and technical parameters, please refer to the unit random information: engine operating instructions.

1.7 generator

3-64KW is STC series three-phase synchronous generator, three-phase star connection with neutral point, line voltage is 400V, phase voltage is 230V, frequency is 50Hz, power factor is 0.8(hysteresis) . According to the user's needs, can also provide 60Hz and other special stripper voltage generator. This series of generators use harmonic excitation, in addition to the stator core on the main winding, there is another set of harmonic winding, after three-phase bridge silicon rectifier rectifier into magnetic field winding excitation. Since the third harmonic voltage will increase with the load of the motor, the self-excitation constant voltage performance can be achieved without any other complicated automatic voltage regulator. 75KW and above using phase complex excitation or brushless motor, see the generator manual wiring diagram (figure 1,2,3,4) .

1.8 unit control panel

According to the unit different configuration and requirements, gedexin unit configuration of the backpack-type (or side-of-the-line) unit control panels (such as: ordinary manual control panels, automatic start control panels, “Three remote” with full automatic communication control panels, etc.) , respectively, to achieve different functions, according to the user's requirements for the unit, our complete set of unit control panels will meet different conditions of use, use.

All types of control panels can monitor the operation status of the unit, electric generator parameters, some units with fault protection (automatic shutdown) and other functions. Basic Fault Protection (automatic shutdown) functions: low oil pressure, high coolant temperature, overspeed, emergency stop (button or key switch) , etc. , the running

parameters of the engine are mainly indicated by the oil pressure, the temperature of the coolant, the engine speed (running hour meter) , and the power generation parameters are mainly indicated by the phase voltage, phase current and frequency, some of the high-grade control panel directly choose the original imported intelligent oil engine controller as the core of the control panel, with more monitoring, display, man-machine dialogue operation, remote communication and protection functions.

1.9 air circuit breakers

In order to protect the main alternator from overload current and other abnormal impact and damage, in the diesel generator power output terminal is equipped with a unit with the supporting power air circuit breaker. Generally it is installed in the side of the generator to generate power in the open cover, high-power units or grid-connected units in the circuit breaker in the outgoing screen or parallel screen. When the user carries on the generator power distribution output, the cable can be drawn directly from the lower end of the air circuit breaker.

1.10 safety and warnings

Before using and maintaining the unit, you must read and understand this manual.
The unit must be operated by trained personnel.
Repair must be performed by authorized personnel and maintained by the operator.
Personnel must understand safety precautions and operational dimensions
Procedures.
Only under safe conditions can start the unit, cut.
Do not know the abnormal circumstances in the boot, to avoid.
Avoid accidents.
When cleaning, maintaining and repairing the unit, it must be carried out under the condition of stopping the unit and removing the negative electrode line of the battery.
Engine exhaust is harmful to human body, all
Units installed indoors shall discharge their exhaust gases outdoors.
Exhaust pipes and silencers generate high temperature when exhaust smoke, so that
When using installation, need to use fireproof heat insulation material and far
Away from combustible goods.
Make sure the machine room has good ventilation, clean ring.
Environmental Protection Department.
Do not store flammable objects (liquids) in the engine.
Near the machine.
Smoking and ignition near batteries and fuel are not allowed.
Flowers or other kindling act as fuel evaporates
It is caused by gas and hydrogen from a battery charge
Explosion.
The standard engine room should be equipped with BC and ABC fire extinguishers,
And requires that you know how to use it.
Remove fan shields or other safety shields
Do not try to turn on your computer when it is on,

Do not attempt to reach under or near these protective devices for repair.
Palms, arms, long hair, jewelry, and loose fit
Keep away from pulleys, belts, etc.
It turns parts.
When working in the computer room, to wear work clothes, wear
Gloves and hat.
When the coolant is not completely cooled, do not try to unscrew it
The cover of the radiator prevents the spray of steam (hot water)
Someone was hurt.
Do not swallow, do not use skin contact fuel, cold
A liquid, such as a coolant, lubricant, or electrolyte; a place
When processing the electrolyte, once splashed by the electrolyte, should be
Flush immediately with plenty of water.
Long-term in the environment of high noise, harmful
Hearing, often working around the unit, suggested
Wear ear protection.
When the unit is connected to the power output cable, it must
Shall meet the conditions, specifications and standards related to distribution,
Use qualified power cables for distribution output.
when the installation unit needs to be welded, it is strictly prohibited to pass the unit (body)
Build iron, ground! To prevent welding high current on the machine
Group internal electrical appliances, bearings, bearings and other injuries.
To ensure the safe and reliable grounding of the unit.

2. Installation

2.1 overview

In order to meet the user's installation, the use of the unit and installation requirements are described briefly, combined with the user's actual use requirements, use location and control system and distribution system and other specific conditions, users need to know more about the unit's detailed technical information, please read this manual carefully or consult the company's Technical Services Department.

2.2Deposit

In order to facilitate the scientific calculation of the warranty period of the unit and satisfy the users' desire to put into use as soon as possible, it is suggested that the unit can be installed and debugged immediately after it arrives at the use site, and arrangement of full-time staff responsible for the operation of the unit and daily maintenance work.

If for some special reasons, units need temporary (or long-term) storage, it should be based on the length of time and make reasonable and feasible

Storage Scheme. Long-term storage of diesel generator will have a decisive adverse effect on diesel engines and main alternator, and proper storage methods are essential.

Storage of diesel generator should be carried out in a step-by-step manner, it includes cleaning the unit completely, keeping the unit dry and ventilated, replacing the new lube oil of proper quality, completely removing the coolant in the water tank and antirust treatment of the unit.

Unit storage should be able to ensure that no heavy pressure and collision, so as to avoid damage. And prevent inflammable and explosive materials placed around the diesel generator group, it is necessary to prepare some fire measures, such as the placement of ABC class fire extinguishers.

To prevent moisture from entering the coil of the main alternator, the condensation of moisture should be minimized. Otherwise, the insulation performance of the generator will be reduced and even the serviceability of the unit will be affected, special measures such as proper heating and dehumidifying devices can be used to keep the generator dry at all times.

Unit storage location should avoid overheating, cooling or rain, sun and so on.

The startup battery of the unit is lead-acid high-energy battery. Users are advised not to add electrolyte before commissioning and use of the unit. If they have already done so, they should pay attention to charging every 5 to 8 weeks, to avoid battery damage or reduce service life.

After a period of storage, it should be noted that the diesel generator should be checked for damage before installation, check whether the electrical parts of the unit are oxidized, whether all the connections are loose, whether the main generator coil is still dry and whether the surface of the body is clean and dry, etc. .

The above content, also suitable for the installation of the unit in the machine room, that is, the room with the most basic conditions.

2.3 moving

The diesel generator unit shall be provided with necessary safety protection during transportation. Should be firmly fixed in the carriage, so as to avoid vibration caused by vibration of its parts loose or even damaged. During transportation, the diesel generator unit should avoid collision and compression damage.

Forklift trucks or lifting equipment should be used when loading and unloading units to avoid unit toppling or falling to the ground causing damage.

During installation, users should use the lifting hole on the bottom of the unit to lift the unit. Never use the lifting ring of the diesel engine or the alternator to lift the diesel generator unit.

For mobile power stations or silent units and other special occasions, with special purposes of non-standard units. It will be much easier to move, carry and lift. Because this kind of unit all has the specially designed side to enable the handling and the easy installation of the housing, even some types of units are also specially installed rubber drag wheel. This kind of shell also provides better safety protection for many parts of the unit, further avoiding the rain and sunshine of the unit and the bruises during transportation injury and can prevent non-operator random movement.

2.4 plant room installation

The first step of the unit installation plan should be the selection of the unit installation site (2.2 storage requirements, is the most basic reference requirements of the selected room) , installation site selection, most of them are based on the convenience of use and the economy of power distribution connection, which is beneficial to the use and maintenance of units.

ensure the smooth flow of the fans into and out of the engine room. The hot air from the radiator must be diverted out of the engine room and prevented from returning Flow;

Ensure that the noise and smoke generated during the operation of the unit to avoid pollution of the surrounding environment as far as possible;

Â — there should be sufficient space around the diesel generator units to facilitate cooling, operation and maintenance of the units. Generally speaking, at least 1 ~ 1.5 meters around, the upper 15 ~ 2 meters within do not allow any other objects;

- protect the unit from rain, Sun, wind and overheating, freezing damage, etc.
- do not store inflammable and explosive objects around the unit.

2.4.1 basic

For mounting and securing the base of a diesel generator, it is essential that it meets the following requirements:

- support the weight of the whole unit and the dynamic impact load caused by the unbalance force during the operation of the unit;

Â sufficient stiffness and stability to prevent distortion affecting the coaxiality of the diesel engine and main alternator;

- control the vibration generated by the unit operation, to minimize the transmission of

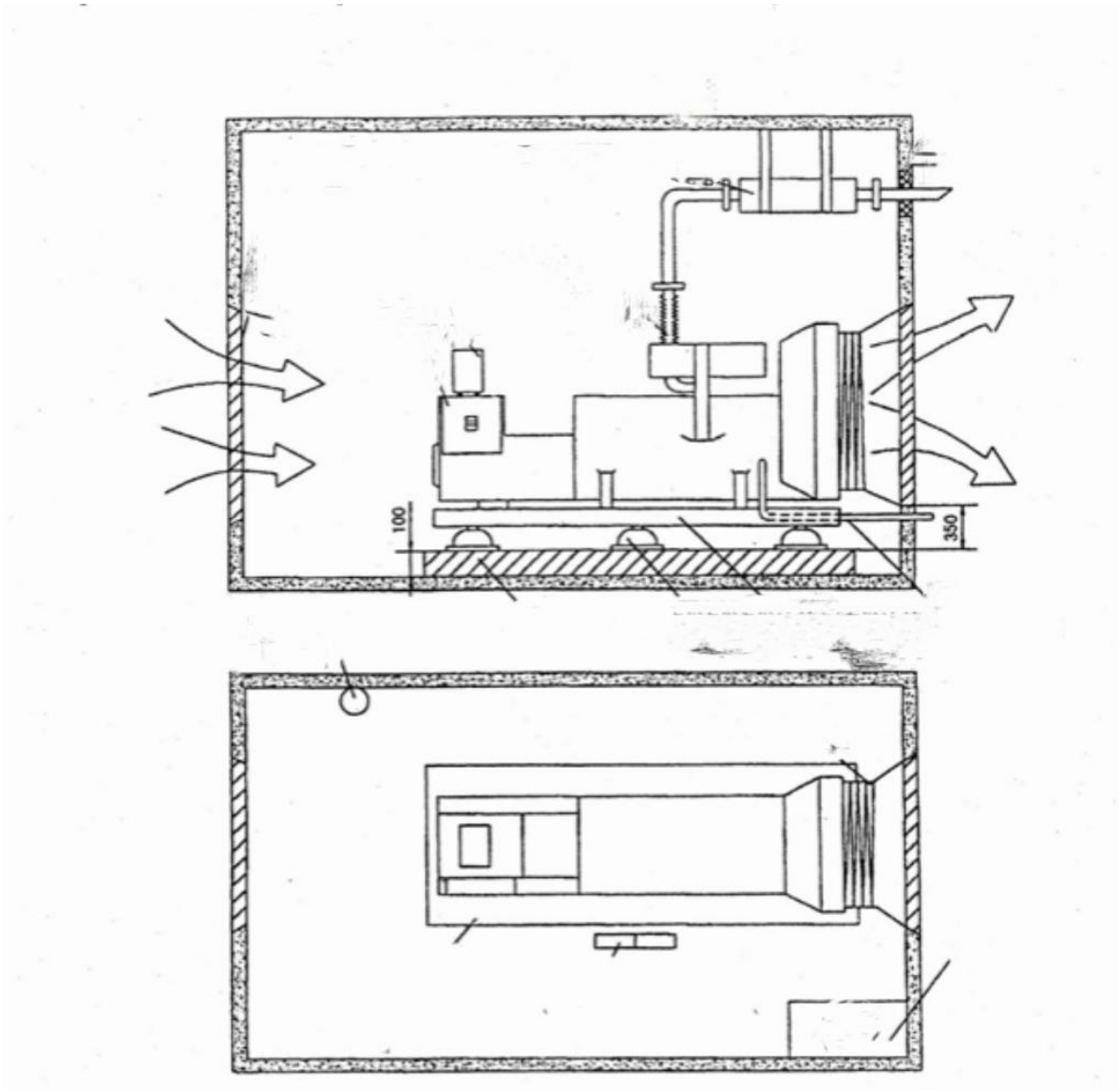
vibration to the foundation and walls;

● the foundation should be as smooth and reliable as possible;

● If conditions permit, a sewage chute may be reserved to facilitate the timely discharge of waste water, oil, etc. . Reserve generator distribution output cable trench.

The concrete foundation is a reliable and convenient installation method, which is preferred by users. When pouring concrete base, should ensure the surface of the concrete level, level or similar instrument used to carry out the installation of unit and its exhaust system.

Generally speaking, the concrete platform height of the diesel generator only needs to be between 100-200mm. The subsoil used to make the concrete platform must also be strong enough to bear the overall weight of the installation and the concrete foundation.



2.4.2 shock absorption

The GEDEXIN diesel generator group randomly provided the unit high-efficiency shock absorbers to the user. (the shock absorbers of the unit with the base fuel tank have been pre-installed on the unit.)

The user may refer to the installation schematic of the unit according to the installation holes on the chassis of the unit, the shock absorbers should be placed on a flat and firm foundation (the shock absorbers should only be fastened on the concrete foundation with expansion bolts) , which can effectively reduce the vibration and impact on the buildings when the units are running, therefore, in the absence of special requirements, it is not recommended to do on the basis of additional shock absorption measures.

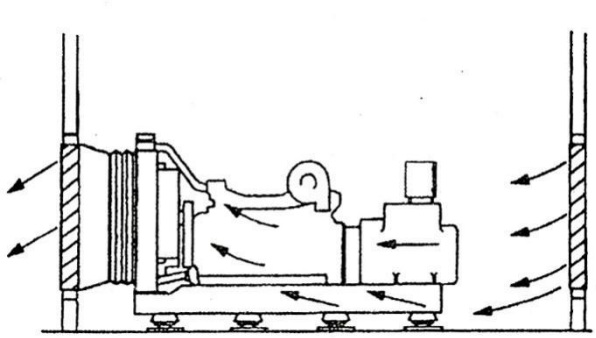
In addition to the unit and the foundation through the installation of shock absorbers, the unit and other parts of the external connection should also be through flexible connection. For example, the smoke exhaust pipe is provided through the unit supporting the corrugated shock absorber

The flexible connection of exhaust duct, fuel inlet pipe, return pipe and distribution cable is also necessary to minimize the vibration of the surrounding objects caused by the unit operation.

2.4.3 ventilation

When a unit with integral radiator is installed in the machine room, the basic principle is to exhaust the hot air from the machine room, to introduce the cold air from the machine room, and to reduce the hot air inflow as much as possible.

The figure below shows the ideal position of the electric generator relative to the walls of the machine room. The goal is to get cold air from the lowest possible point, force it through the radiator chip, and then direct it out of the room.



The user may use the metal plate or the plastic plate manufacture one guide wind cover. The connection between the air guide cover and the heat sink of the unit must be flexible to block the transmission of the vibration of the unit and to ensure that the hot air is discharged more completely and safely.

The effective circulation cross-section area in the air guide cover should be larger than 1.5% of the positive area of the radiator core. 25 times. And the wind cover should be smooth, less acute angle bending, in order to reduce wind resistance. Also the effective area of the air inlet should be larger than the radiator core area of 1.5% . 25 times.

When the user installs a protective net, a shutter or a greater curvature in the air inlet and the air outlet, the effective circulation section area will be reduced. Resistance will also increase, so it is necessary to further increase the flow Total area.

In general, the amount of air discharged by the fan is enough to meet the ventilation requirements of the machine room.

The engine intake temperature should be below 40 °C. If the intake temperature is higher than this value, the output power of the engine will be reduced, so it is necessary to introduce fresh air from outside the engine room in time to give Motivation provides air intake.

If the engine is equipped with a remote radiator. Forced ventilation of the engine room must be considered.

For an engine with a thrust fan, it is best to use a separate pipe to discharge the exhaust gas from the crankcase out of the engine room, otherwise the exhaust gas from the crankcase will deposit on the radiator, causing the radiator to stick to dirt and cause obstruction, therefore reduces the heat dissipation capacity.

2.4.4 rows of smoke

GEDEXIN diesel generator is equipped with heavy-duty industrial silencers of the same specifications as the unit. Users can design and install the smoke exhaust system of the machine room. When designing and installing the smoke exhaust system, the following aspects should be taken into account:

ensure that the total exhaust back pressure is not higher than the maximum allowable value specified by the engine; (the maximum exhaust back pressure of a typical unit does not exceed 5 kpa)

- securing smoke exhaust systems to protect smoke exhaust manifolds and turbocharger from longitudinal and lateral pressures;
- there is room for expansion and contraction;
- leave room for unit vibration;
- reduce exhaust noise.

The picture above is a typical sketch of the unit's smoke exhaust installation.

The engine exhaust smoke back pressure is a direct result of:

- loss of output power;
- deterioration of fuel economy;
- increased exhaust temperature.

In the smoke exhaust system, flexible bellows should be used to connect the smoke exhaust pipe to the diesel

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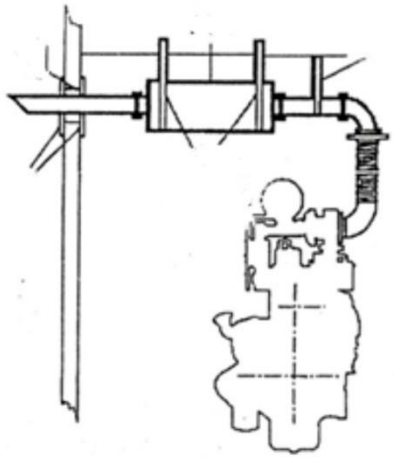

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turbocharger, which has three principle of this kind of muffler is to absorb noise by installing sound-absorbing bushing inside the muffler, and the frequency range of reducing noise is wide.

The exhaust back pressure value of the whole system is obtained by adding the exhaust back pressure value of the muffler and the exhaust pipe.

If more than one unit is installed, try not to exhaust the unit from the same flue. If conditions do not allow the installation of independent smoke exhaust pipe, in order to ensure that the unit does not exceed the total smoke exhaust back pressure, branch smoke exhaust pipe to install to prevent backflow of the mobile partition.

isolating the vibration and the weight of the exhaust pipe from the diesel engine;

compensation for thermal expansion of smoke exhaust pipes

Â — if the diesel generator is mounted on a shock-proof underframe.

Compensate for side sway movement when the unit starts and stops.

Rainwater or condensate into the engine exhaust system will cause serious damage. Therefore, a long smoke exhaust pipe should be installed on a water outlet, its location as close as possible to the unit.

2.4.5

The noise of 90-llOdB usually occurs during the operation of the diesel generator, and increases slightly with the increase of the load.

In order to meet the requirements of local environmental departments for noise reduction standards and not cause noise pollution of the environment, affecting the normal lives of the surrounding residents,

It is also very important to take measures to reduce the noise of diesel generating set.

Noise Reduction Project is a comprehensive professional project, users in the unit noise reduction scheme design and construction, due consideration should be given to such factors as the minimum air flow rate required for normal operation of the unit and the backpressure of the exhaust should not exceed the reference value. Otherwise, it will seriously affect the normal operation of the unit.

Our company can provide two-stage weighted silencer or whole silent type units for users to choose.

2.5 cooling system

The GEDEXIN diesel generator are all cooled by self-contained fans and closed-loop liquid cooling. The circulation circuit of its cooling system is basically composed of the following parts:

● water pump; Waterways in the engine block;

● thermostats;● the bypass pipe between the thermostat and the water pump;● radiator of water tank;

Pipes and hoses● parking cooler;

● coolant filter (some models have) .

For non-standard units, such as split water tank units, water tank loose

The heater should be replaced by a heat exchanger, along with supplemental water tanks and remote cooling fans. If the remote cooling fan installation position is relatively high, should also increase the transition water tank, to prevent the heat exchanger due to excessive internal pressure and damage.

The cooling performance of the radiator will be greatly reduced by sticking all kinds of dirt on the radiator chip, therefore. In a dusty environment, it is necessary to clean the radiator frequently.

2.5.1 coolant

The engine coolant has the following three functions:

provision of adequate heat transfer capacity

Prevention of Corrosion of all metallic materials in the cooling system;

provision of adequate anti-freezing capability.

Coolant should be composed of water and antifreeze or water and antirust mixture, of which, the PH of water should be between 6 -8, usually recommended the choice of pure water.

In areas with ice, the coolant should contain 40% 1600-/0 antifreeze, users are recommended to use 50% unit antifreeze and 50% pure water mixture, and should be prepared in an independent container, mixing evenly and then added to the water tank, the antifreeze capacity can reach about 130 c. (see antifreeze instructions for details)

The selection of qualified brand coolant is the key to ensure the normal use of the engine.

Users are not advised to add more than 600-0 antifreeze in the coolant, otherwise it will reduce the cooling performance of the diesel generator.

Antirust fluid can be used in place of antifreeze in areas where there is no risk of freezing. When the mixture ratio of antirust liquid and purified water is about 1:30, the better antirust effect can be achieved, and the cooling performance of the unit can not be reduced, in order to obtain the best corrosion protection.

Do not mix antifreeze of any kind with additives such as antirust fluid, as this will create a large number of foam and reduce its cooling performance.

2.5.2 replacement of coolant

The coolant should be changed every two years to avoid reducing cooling performance due to precipitation in the cooling system. Another reason to replace the coolant is to avoid the risk of unit rust, because over time, rust will prevent the effective performance of the coolant and make the water temperature sensor failure.

When changing the coolant, the system should first be washed with clean water.

Ensure the unit is closed and the body is completely cold when the coolant is discharged

However, then open the water tank filling cap. Then Open the drain cap or drain plug. If the unit is equipped with a coolant filter (some models) ,

The filter should be removed and replaced.

2.5.3 addition of coolant

Make sure that the discharge cap is closed and the discharge plug is in the correct position before adding coolant to the coolant system;

Do not add coolant too quickly to the system to avoid the formation of bubble faults in the system;

Air shall be discharged through an intake port or an exhaust valve. If the cooling system is connected with a heater, the heater control valve should be opened, and the unit should be kept ventilated when injecting;

When coolant is injected, the level of coolant should be 5 cm below the weld face of the filler plug (or the coolant level indicator scale) . Ensure that the unit is shut down and fully cooled before coolant is added. Do not start the unit until the system is ventilated and fully cooled. After the coolant is added, attention should be paid to start and preheat the unit. At the same time check the cooling fluid level, if necessary, please add, the water tank should be joined with the original cooling system containing the same size of the cooling fluid;

● part of the unit equipped with coolant filter, before the official operation, open the filter valve (handle to the vertical position) .

2.6 lubrication system

The main function of engine oil is to reduce friction and wear by providing a long-lasting protective film between the running parts of the engine, and to prevent friendly corrosion on the surface of each part. High temperature cylinder and bearing oil film dependence is very high. The lubricating oil has very important cooling function to many parts of the engine.

The Lube Oil and Lube Oil Filter in the Lube system must be changed regularly according to the service condition and time.

2.6.1 Lube

The recommended electric generator at room temperature is 15W40CF, the users can decide to use the complimentary Lube Oil brand (O ° C-400C with 15W/40,20W/40, O ° C-10 ° C with 15W/40,10 ° C according to their own using environment and conditions

15 W/40 at ~ 30 °C) .

The user must check whether the lubricating oil needs to be added according to the Lube Oil Standard position every time he starts the machine. In the long-time operation, the user should also check the Lube Oil level regularly (6-8 hours/time) , to ensure the normal operation of the unit lubrication system.

Use with good quality, proper viscosity, and on a regular basis as required

Oil replacement is the key to normal operation of the diesel generator unit, and unit failure caused by using the wrong type, poor quality oil or prolonged failure to replace the oil will not be guaranteed service.

2.7 fuel system

The fuel system consists of tanks, pipelines, Fuel filter,

Composition of fuel injection pump. The diesel generator section requires that incoming fuel be clean

Clean, free of air and water, with proper pressure, and should be ignited

The sulfur content of the oil must meet the national standard and the use temperature grade is suitable

Temperature requirements for the user's on-site environment.

2.7.1 tank

Our company can provide standard fuel tank as optional parts by the user to decide whether to buy. When you make your own fuel tank, you should pay attention to the spare fuel tank made of stainless steel or steel plate, do not spray paint or galvanize the inside of the fuel tank to prevent them from possible chemical reaction with diesel fuel, produce impurities that may cause damage to the unit and reduce diesel quality, cleanliness and combustion efficiency. In addition, the fuel tank should be equipped with:

- the ventilation pipe on the top of the parking box;
- Oil level observation window;
- drain valve at bottom of fuel tank;

the grounding cable between the fuel inlet and the fuel tank;

- perforated baffles shall be provided in the fuel supply and return areas of the fuel tank,

To reduce heat exchange;

● the position of the fuel tank supply pipe end should be about higher than the bottom of the fuel tank

50mm to prevent sediment and water from being sucked into the tubing;

● oil tank level of some units should be higher than engine fuel injection

Position of injector: in case the injector return oil, start up difficult.

2.7.2 tubing

● the oil pipe should avoid the influence of excessive heat dissipation by the unit;

● the maximum allowable temperature of fuel before fuel injection pump is 60cc;

It is important to ensure that oil does not leak into and out of the fuel injection and return pipelines;

The unit is connected with the oil pipeline by a hose, if the unit is installed with a flexible (through a shock absorber) . Hoses must be fitted.

Pipe diameter should be more than 8 mm, if the fuel pipe length is more than 6 meters, pipe diameter should be increased by more than 20% . The return tubing should be connected back to the top of the tank and not directly to the intake tubing. For the unit with a base fuel tank has been provided to the user off-the-shelf fuel tank, tubing, oil level meter.

2.7.3 fuel

In order to obtain the required power, fuel economy and emission standard, the quality of fuel has a very important influence on the working life and emission composition of diesel engine, should be used to meet international and national standards of fuel, fuel temperature grade, sulfur content, specific gravity and other indicators.

The low temperature and grade of fuel should be suitable for the site environment. There should be no moisture and air in the fuel. Poor quality fuel will affect the start-up, lubrication and Fuel filter cycle of the engine.

The specific requirements of the unit for fuel oil are detailed in the operating manual of the random engine.

Unit failure caused by the use of poor quality fuel oil will not be guaranteed service.

2.8 control system

GEDEXIN diesel generator are equipped with unit control panels, different types of control panels will meet the user's different needs.

● Standard Screen: that is, manual control screen, users only need to machine

The group starts the battery to receive the person. Then the local control machine button starts and stops.

self-starting control panel: the unit can be manually controlled in place, but also remotely start and stop (controlled by external signal line) , the user must correctly connect the signal control line to the panel. (see panel random information for details)

●“Three remotes” with automatic control screen for communication: on the basis of having the function of self-starting screen, it also has the communication mode. Please refer to the random information for the specific communication and communication protocol.

ATS screen (optional) : control screen for automatic power generation/municipal power

conversion switch. (see panel random information for details)

● parallel screen (optional) : two or more automatic (manual) parallel control screen. (see panel random information for details)

2.9 battery

Start-up battery of GEDEXIN diesel generator unit. Before starting the battery, unscrew the top cover of the battery case and slowly inject the standard electrolyte until it is set on the upper scale of the extreme plate (not exceeding) . Please do not use it immediately after it is done. Let the battery rest for about 30-60 minutes. At low ambient temperature, the standing time is further extended. (see battery instructions for details)

The user can use the battery standard connecting wire provided by the unit to connect the positive pole by red and the negative pole by black (or blue) to connect with the starting motor end of the unit correctly. Most of the diesel generator units do not allow the negative electrode of the battery to be directly connected to the casing.

The storage energy of start-up Battery will determine whether the diesel engine can start smoothly in the specified time.

While the diesel generator is in operation, its self-contained charging generator is responsible for continuously charging the starter battery.

Make sure the positive and negative pole connection is correct, once the connection will cause a fault! The rechargeable generator must be damaged after the connection is reversed

When the unit is put into operation, the battery connection line shall not be disconnected!

2.10 distribution system

The output of the power distribution of the diesel generator unit is output through the plastic shell which is matched with the unit capacity on the side of the unit. The opening is in the unit control screen or in the open cover on the side, and can be directly operated by the handle, closing and opening. The purpose of the air switch is to protect the alternator of the unit from overload current operation or other abnormal shocks. The air-opening has high breaking ability and automatic fault tripping ability, when the user carries on the electric power connection. Direct from the open lower end of the power cable to their own load can be.

There is no plastic shell opening in the open cover of the generator set of the high-power unit or the parallel unit, and the main circuit breaker in the generator set of the output control protection is replaced by the main circuit breaker of the generator set.

When installing the power distribution output of the unit, the user should configure the cable to meet the safe current carrying capacity and ensure the phase sequence of the power generation output is correct.

2.11Unit prehrater

Gedexin series diesel generator require the user to ground the base of the unit safely. The grounding point can be found in the grounding mark of the base of the unit. 2. Unit 11 preheater

As an optional part, our company can provide users with two types of unit preheater, for

users to choose. The purpose of using the preheater is to ensure that the unit can start quickly in low temperature and emergency.

These two kinds of unit preheater are AC electric heating preheater and DC electric fuel heating preheater respectively. They both heat the cooling fluid of the unit to achieve the aim of constant temperature (heating up) of the unit body, the difference lies in the former is to use AC power as energy, while the latter is to use the unit fuel (diesel) as heating energy, users can use the environment, conditions to buy heaters.

A complete set of heaters made up of GEDEXIN diesel generator has been installed and tested before leaving the factory. Users only need to connect the relevant power supply (fuel oil) as required before they can be put into operation.

3. Run the operation

3.1 pre-run check

Once installed, the GEDEXIN diesel generator can be put into operation before each start-up. At a minimum, the following items shall be inspected:

- whether there are any obstacles on the surface and around the unit;
- whether the inlet and exhaust passages of the machine room are unblocked;
- whether the level of cooling water tank is normal;
- Â whether the air filter is normal;
- whether the oil level is within the normal range;
- whether the fuel valve is open and fuel is normally supplied to the engine;
- whether the battery cables are properly connected;

the readiness of the generating load equipment and the need to disconnect the air switch before starting when the generator is directly loaded.

It is the basic guarantee for the long-term trouble-free operation of the unit that the operators establish good operation (maintenance-RRB- procedures.

3.2 unit operation

3.2.1 preheat

A unit equipped with a preheater. Before starting, people can decide whether to preheat the unit according to the ambient temperature. The control panel with the preheat button can control the engine to start the heater to achieve the goal of preheating.

3.2.2 power on

Turn the control panel key switch from“OFF” to“ON” and observe that the instrument background light ON the panel indicates that the control panel is powered up and the unit fuel is ON, the controller with electronic speed controller or EFI type unit is also in working state.

3.2.3 activation

Part of the unit control screen with idle/full speed switch, users can according to the actual needs. Choose whether to start at idle or full speed for one time. Normally idle running time should not exceed 5 minutes; unit should not run at idle for a long time.

Press the Start button, the maximum duration is not more than 30 seconds, the engine starts under the start motor drive, once started successfully, can release the Start button, the unit into operation.

Suggestion: in order to extend the service life of start-up Battery and start-up motor, the time of one start-up unit should be controlled in 5-10 seconds. If a start-up is not successful, can pause the corresponding time to start a second program.

With self-starting (or communication) instrument control panel, the unit warm-up, start-up cycle and start-up times have been controlled by the program (the program users can set, change) . Specific use details see the random use manual.

When the unit control screen failure, it must be in time for maintenance before the boot.

Any action of starting the engine by force without the control panel will result in no warranty service.

3.2.4 Run

When the unit is running at full speed and the voltage and frequency of the generator are normal and stable, the operator can open and close the generator.

During the operation of the unit, the operator should also constantly observe and know whether the unit is in normal operation, whether there are warning instructions on the control panel, the fuel level of the fuel tank and other operating parameters, and the operating parameters of the unit are recorded at regular intervals (see example) .

3.2.5 emergency stop

Once the operator found that the unit has a serious fault or power distribution failure, you can press the control panel emergency stop button, the unit to immediately stop. When no special circumstances occur, it is not recommended that the user randomly stop the unit through the emergency button to stop the operation.

3.2.6 normal shutdown

Before the normal shutdown of the unit, first of all, the load will be separated (power generation open to break) . Then the unit will run a certain time after no-load (3 ~ 5 minutes) , so that the unit is fully cooled after the shutdown. Do not perform cooling operation at idle speed.

For the part of the unit with the stop valve installed, the relevant key switch to break the control panel to stop the operation of the unit is invalid. Correct shutdown operation, must be in the control panel when power, press the shutdown button to make the unit to stop operation.

In this chapter, the unit operation is based on the unit standard configuration screen common manual control screen as an example, the user for specific control screen operation, but also should refer to the random information: “Control Screen Manual”.

3.3 After runs

It is necessary to carry out the following work after unit shutdown:

● check whether the unit has“Three leakage” phenomenon (Lube Oil, fuel Oil, coolant) ;

close the fuel valve;

● shut down the air intake and exhaust facilities of the plant room;

turn off the generator output and leave it open;

Turn off the power key switch of the control panel, take out the key and keep it properly;

Long downtime or unit maintenance must be carried out

Remove the negative electrode cable of the start-up battery of the unit, and if necessary, drain the fuel oil and coolant.

For the self-starting unit, some of the above provisions are not suitable, after the shutdown of the self-starting unit work: is to allow it to continue in the pre-boot state (standby state) , in case of emergency start.

3.4 running records

Every time the unit runs, the user must do a good job of running records, running records have a variety of forms. The basic contents should include: the running time, the unit cumulative running time, the running engine oil pressure meter, temperature meter readings, power generation voltage, frequency, maximum power (current) records, etc. , unit operation, unit failure alarm/shutdown, etc. .

Correct and complete operation (maintenance) records, users can get the right and perfect after-sales (warranty) service.

Example: Operation Record Table:

Time			Engine parameters		Engine parameters		Failure Record	Operator	Notes
Boot time	downtime	Accumulated hours	Oil Pressure Pa.	Water Temperature C	Voltage A	Frequency Hz			

3.5 points to note

When the engine temperature is very low, the idle time of the unit should be appropriately extended; when the unit warm-up does not allow the unit to run at idle for a long time, does not allow the unit to run continuously under no-load or small load conditions, such operation will result in serious carbon turbocharger and oil leakage in the engine and exhaust system;

Do not allow long-term overload operation of the unit, otherwise it will lead to unit failure, reduce unit life;

It is forbidden to disassemble or replace the parts on the unit while the unit is running.

When adding coolant, use the same coolant from the original cooling system. When opening the water inlet cover, pay attention to whether there is high temperature, to prevent steam or high temperature coolant spray injury;

Prevent burns when discharging high temperature lubricating oil;

Must use in line with national standards of fuel, otherwise it will cause, the engine fuel pump injector fault;

For turbocharger engines, it is not recommended that the unit bear more than 50% of the sudden load, otherwise, it will cause a large stall of the unit, the method of reducing voltage and frequency is adopted to control the start-up, so as to slow down the big impact on the unit during start-up

Stand-by units or units that have not been operating for a long time. Recommended at least once a month to the operating temperature of the unit, at least once a year to the unit with a full load to run about 4 hours, which can burn the engine exhaust system carbon;

Manual parallel machine control unit, must ensure the synchronization (same frequency, same phase sequence, same phase, same voltage) to close the rear; Prevent stand-alone failure downtime.

4. maintenance

4.1 overview

In order to obtain the maximum operating safety and service life of the unit, regular maintenance of the unit is essential, if the unit can strictly comply with the relevant maintenance regulations, can guarantee the performance of the unit and avoid the damage to the environment;

The correct identification and strict compliance with the logo (graphics, text, warning, etc.) on the body of the GEDEXIN brand diesel generator group are of great help to maintain the correctness of maintenance and the safety of operation and use;

Unit maintenance, must be carried out in the shutdown, and the unit should be started by removing the battery negative cable, to ensure that the unit will not be misstarted.

4.2 engine

4.2.1 before each boot

● check the oil level;

● check the level of coolant;

Â check the air filter blocking indicator;

Check Radiators and external ventilation;

Check the engine transmission belt group;

● inspection of fuel supply;

Long Line unit every 6-8 hours should be checked once, standby machine

Check again after group shutdown.

4.2.2 the new units operate for 200-300 hours

Check valve clearance;

● check fuel injectors;

4.2.3 per 50-hour run

● discharge of stagnant water in the oil-water separator;

check the electrolyte level of the starting battery;

4.2.4 every 50-600 hours or up to Less every 12 months

replacement of lubricating oils and oil filters

According to the quality of the oil and fuel sulfur content and engine consumption of different oil, each unit will change the oil cycle will be different.

4.2.5 every 400 hours

Check and adjust the transmission belt and replace it if necessary

Check and clean the radiator chips;

● discharge of silt from fuel tanks:

4.2.6 per 800 hours of operation

● replacement of oil-water separator;
Â replacement of Fuel filter;
Â check for leakage of turbocharger;
● check the intake pipe for leakage;
inspection and cleaning of fuel pipelines

4.2.7 per 1200 hours of operation

Adjust the valve clearance

4.2.8 per 2000 hours of operation

Â replacement of air filter;
● replacement of coolant;
● clean the radiator chip and water channel thoroughly;

4.2.9 per 2400 hours of operation

● check fuel injectors;
Â thorough inspection of cleaning turbocharger;
Comprehensive Inspection of engine equipment
For specific units, users should also refer to the engine
Maintain the data to give the correct implementation.

4.3 generator

The inside and outside of the alternator should be cleaned regularly, and the frequency of cleaning depends on the environment of the unit. When you need to clean, you can follow the following steps: turn off all the power, the appearance of all dust, dirt, oil stains, water or any liquid wipe, ventilation network to clean, because these things get into the coil, the coil will overheat or damage the insulation. Dust and dirt had better use vacuum cleaner suction, do not use blowing or high-pressure water to clean.

The generator moisture caused by the reduction of insulation resistance, must be sent
The motor is dried. Drying methods and maintenance details refer to the following
Generator operation and maintenance instructions.

4.4 the control panel

The daily maintenance of the unit control screen should ensure the clean surface, make the instrument display clear and intuitive, the operation button (key-RRB- flexible and reliable.

During the operation of the unit, the vibration will cause the zero position of the control panel instrument

Deviation, the fastener loose, so regularly on the control screen calibration, tight

The work of fixed connectors and connecting wires is necessary.

Maintenance unit control panel must be in a detailed understanding of the control panel principle (see the random control panel instructions) can be carried out.

4.5 start the battery

Long-term storage of the battery, before use must be given appropriate

Charge the battery to ensure the normal capacity. (2) by hydrometer

Check the actual capacity of the bottle)

Normal operation and charging will cause some water in the battery to evaporate, which requires frequent rehydration of the battery. Before rehydration, first of all, the dirt around the charging port should be cleaned to prevent it from falling into the battery case, then open the filling port, add the right amount of distilled or purified water, do not add too full (battery extreme plate scale as the standard

Otherwise, when the battery is discharged/charged, the electrolyte inside the battery will gush out from the overflow hole of the charging port, causing corrosion damage to the surrounding objects and the environment.

Avoid battery at low temperature start-up unit, low-temperature environment electricity

Bottle capacity will not be able to output properly. And a long time discharge is possible

Battery failure (cracking or explosion) .

The battery of standby unit should be maintained and charged regularly. Users are advised to choose battery floating charger.

4.6 maintenance records

Every time the user carries out maintenance, the work must be done

Keep detailed records.

A complete maintenance record is the basis of user maintenance units, but also units can get legal after-sales (warranty) service

Requirements.

Example: maintenance record sheet

<table>
<tr><td colspan="2">Unit type</td><td colspan="2">Engine type:</td><td>Engine type:</td></tr>
<tr><td colspan="2">Unit number:</td><td colspan="2">Engine number:</td><td>Engine number:</td></tr>
<tr><td colspan="3"></td><td colspan="2"></td></tr>
<tr><td colspan="5">Maintenance Reason: (regular maintenance or failure maintenance)</td></tr>
<tr><td>Change parts</td><td>Check and repair</td><td>Check for adjustments</td><td>Clean and maintain</td><td>Other</td></tr>
<tr><td colspan="5">Maintenance conclusion:</td></tr>
<tr><td colspan="5">Signature of maintenance personnel:</td></tr>
</table>

5.trouble shooting

5.1 overview

There are many factors that can cause a diesel generator failure, and the failure phenomena are highly correlated. This section focuses on a summary list of possible failures in the GEDEXIN brand diesel generator group. It can only be used as a reference for the users to eliminate the faults of the units. (you More important for new users) .

It must be emphasized that most of the faults are caused by improper installation, operation and maintenance of the user, and the user has the right to suspect that the fault of the unit itself is the cause, however, this must be based on the correct installation, operation and regular maintenance of gedexin units, otherwise, the normal operation and due The Adjuster of the units will not be guaranteed.

5.2 failure query table

Failure phenomenon	Possible causes	Method of exclusion
The unit could not start	Unit start-up battery capacity is insufficient	Maintain the battery (charging, rehydrating) and replace the battery if necessary
	The control panel is not powered up	Check the control panel for a fuse
	Some units (EFI) shop start too fast, EFI controller has not passed the self-test	Reset on the control panel and restart (with a pause of 3-4s)
	Initiate power failure	Replace this relay
	The starting motor is out of order	Analyze the cause and replace if necessary
	Unit stuck, manual can not turn the car	Thoroughly love milk tea, looking for reasons
Start-up difficulty or start-up time is too long	Unit start-up battery capacity is insufficient	Maintain the battery (charging, rehydrating) and replace the battery if necessary
	Insufficient preheating before starting	Check preheating components
	Some electrolytic unit throttle potentiometer is too small	Please refer to the manual of random governor. The potentiometer should be adjusted appropriately
	The unit is at low temperature	It is suggested that unit heater should be selected to raise the temperature of the machine body
	The unit is in the thin air condition on the plateau	Can not start at a speed, must be running at idle under a certain time must be replaced
	The wrong type or model of fuel was used	Must be replaced
	There is water in the fuel oil	Replacement of fuel oil, the proposed installation of oil-water separator
	There is air or no fuel in the fuel system	The air will be removed, through the manual fuel pump to enable the normal flow of fuel from the tubing
	The Fuel filter is clogged	Change the Fuel filter regularly
	The intake system is seriously blocked	Change the air filter regularly
	Fuel injection pump and nozzle failure	Please authorized personnel

	(clogging)	to check the oil pump, analysis of the reasons, most of them due to long-term use of substandard fuel caused by
	Pump failure	Check and repair, replace if necessary
	Shutdown solenoid valve failure	Check and repair, replace if necessary
	The exhaust system is badly clogged	Check and troubleshoot
	Electronic Speed Control Board failure	Check if power is on, replace if necessary
The unit can not keep running after starting	There is water in the fuel oil	Replacement of fuel oil, the proposed installation of oil-water separator
	There is air or no fuel in the fuel system	The air will be removed, through the manual fuel pump to enable the normal flow of fuel from the return pipe
	A Fuel filter or air filter blockage	Replace the three filters regularly
	Lack of idle time in air-poor areas	Properly extend the idle time to ensure that the unit warm
	Use the wrong type or brand of fuel	Fuel must be replaced
Unit starts easily overspeed	The starting throttle and climbing speed of the electronic speed control unit are improperly adjusted by the electronic positioner	Refer to the random Governor Manual for minor adjustments to the throttle and ramp speed potentiometers
	The overspeed protection value is set on the low side	Overspeed protection value slightly adjusted, the maximum not more than 17%
	For mechanical speed control structure	Check the throttle lever for flexibility and make sure it is adjusted correctly
	Failure of fuel injection pump (system)	Please authorize the personnel to check the maintenance
The unit started up with Black Smoke	Recent system jam	Replace the three filters regularly
	Use the wrong type or brand of fuel	Fuel must be replaced
	The engine is too cold	Wait until the engine reaches normal temperature
	The air is thin on the plateau	Plateau engines should be run at reduced power

	The inlet air temperature is too high	Intake air temperature should not be higher than 40 °C
	Return tubing blocked	Check and make sure the return line is clear
	The turbocharger are badly worn	Repair, replace if necessary
	Wrong valve clearance	Check and adjust valve clearance
	The oil supply is not timed correctly	View fuel injection pump data and ask authorized personnel to repair and adjust
Smoke Blue or white	Excessive engine oil	Check the oil level
	Use the wrong type or brand of lubricant	Change the oil and filter to ensure that the correct type of oil is used
	Use the wrong type or brand of fuel	Replace and make sure to use the correct type of fuel
	The cylinder head is leaking	Check the cylinder block of the lever head and replace it if necessary
	The engine is due for overhaul	Overhaul the engine
The unit can not reach the rated speed	The unit is working under overload condition	Reduce the load, do not exceed the unit rated load use
	There is an error in setting the speed potentiometer of the electronic speed regulating plate	Please refer to the Governor Manual. Give the correct settings to replace
	Electronic speed control system failure	Repair or give replacement
	The throttle control of the mechanical governor is improperly adjusted (or loosened)	Check and adjust
	The fuel line is blocked -LRB-or too thin)	Repair (replace)
	There is water in the fuel oil	Replacement of fuel oil, the proposed installation of oil-water separator
	3 filter replacement is not timely	Replace the three filters regularly
	The frequency (speed) meter is out of order	Replacement
Unit cruise	Mechanical speed control structure throttle rod loose	Check, adjust to the correct position
	Improper adjustment of speed governor in electronic speed control system	Refer to the governor random instructions and set the “Gain” and “Stability” potentiometers correctly

	Speed control mechanism out of control	Please ask the relevant authorized personnel to repair
	The fuel system has air or water	Check and rule out (change fuel)
	Large and frequent load ups and downs	Try to control the load
Unit Operation Instability, vibration	The load system has air or water	Check and rule out (change fuel)
	The air filter is blocked	Replace the three filters regularly
	Excessive or incorrect grade of lubricant	Check the oil level or change the oil and filter to ensure that the correct type of oil is used
	The intake temperature of the engine is too high	Intake air temperature should not be higher than 40 °C
Unit operation instability, vibration	The exhaust pipe is blocked -LRB-or the back pressure is too high)	Reduce back pressure, so that the engine exhaust smooth
	Failure of fuel injection pump (system)	Please authorize personnel to repair
	Incorrect valve clearance	Check and adjust valve clearance
	Damage to cooling fan	Check and repair, replace if necessary
	The base of the unit is not smooth and the mounting position of the shock absorber is not correct	Check and adjust position
	The use condition is bad, the engine enters the overhaul period ahead of time	Overhaul the engine
Low oil pressure	The oil level is incorrect	Check the oil level, increase or discharge
	The brand of lubricant is incorrect	Change the correct brand of lubricant
	The oil has not been replaced for a long time	Change the oil regularly
	The Lube Oil Filter is blocked	Replace the three filters regularly
	The Lube oil temperature is very high	Check, repair or replace oil coolers
	Crankshaft bearing wear or damage	Check or replace and find out why
	Pressure reducing valve damaged	Replace the relief valve
	Oil pan oil absorption filter blocking	Check, repair or replace the suction pipe and clean the

		suction filter
	Oil alarm switch (sensor) or instrument failure	Check control panel, instrument, body sensor, repair or replace, trouble shooting
The coolant temperature is too high	Insufficient coolant	Add Coolant
	The radiator fin is blocked	Find solutions to clogging problems and clean radiators
	The radiator is poorly ventilated	According to the installation requirements, increase the ventilation area, ensure that the ventilation is smooth
	The cooling fan is not working properly	Check the tension of the fan belt and replace the belt if necessary
	The fan is damaged	Repair or replace
	Pump damaged	Repair or replace
	The thermostat is out of order	Replacement
	Fuel injection pump failure	Please authorize personnel to repair or replace
	Incorrect timing of fuel supply	View fuel injection pump data and ask authorized personnel to repair and adjust
	The ambient (intake) temperature is too high	Keep the machine room ventilated, reduce the machine room temperature reasonably
	The unit is seriously overloaded	Control the load and forbid the unit from overloading for a long time
	Coolant alarm switch (sensor) or instrument failure	Check control panel, instrument, body sensor, repair or replace, trouble shooting
Excessive fuel consumption	External or internal fuel leakage	Check for and eliminate leaks
	The air filter is blocked	Regularly
	The air is thin on the plateau	Reduce the power to run
Excessive fuel consumption	The engine is too cold	Find out why
	The unit is seriously overloaded	Control the load and forbid the unit from overloading for a long time
	The exhaust pipe is blocked (back pressure is too high)	Check the exhaust pipe and control the back pressure
	Incorrect timing of fuel supply	View fuel injection pump data and ask authorized personnel

		to repair and adjust
	Incorrect valve clearance	Check and adjust valve clearance
	The unit is under overhaul	Overhaul Unit
Excessive consumption of lubricating oil	Oil leak	Check for and eliminate leaks
	Wrong type or brand of lubricant	Change the oil or filter to make sure the correct oil is used
	Wear on turbocharger seals and bearings	Repair or replace
	Piston, cylinder liner, crankcase wear serious	Check the reason, whether to enter the overhaul period
Insufficient unit output power	Overload relative to rated power unit	Run at reduced load
	The plateau area causes the success rate to be insufficient	Unit power shall be corrected if the altitude exceeds 1000m
	Fuel line is too thin or blocked	Check, increase the fuel pipe diameter, reduce fuel pipe resistance
	Use the wrong type or brand of fuel	Change the fuel and filter to ensure that the correct type of fuel is used
	Return tubing blocked or frost vent blocked	Check and troubleshoot
	Exhaust pipe obstruction (high back pressure)	Check the exhaust pipe and control the back pressure
	Insufficient air intake (air filter blocking)	Regularly updated HA un three filters
	The temperature of intake air (engine room) is too high	Keep the unit ventilated, reduce the air intake temperature of the unit reasonably
	Fuel temperature is too high	Try to control the input fuel temperature < 70 ° C
	Failure of fuel injection pump or speed control system	Please authorize personnel to repair or replace
	Damaged or defective turbocharger impeller	Repair or replace
	Incorrect valve clearance	Check and adjust valve clearance
	Incorrect timing of fuel supply	View fuel injection pump data and ask authorized personnel to repair and adjust
	The unit has entered the period of overhaul	Overhaul Unit
The unit can not be	Self-starting unit, ATS start signal cut	The situation is normal, the

shut down	off. The unit is still in operation	unit goes into cooling operation after shutdown
	Shutdown solenoid valve out of control	Check the wiring is correct, if necessary to replace the solenoid valve
	Electronic (mechanical governor failure)	Please authorize personnel to repair
	The control panel disconnects the key switch first, then presses the stop button	Wrong operation, must first press the stop button, and then turn off the key switch
	Oil engine control instrument failure	Repair or replace
	No fuel or water or air in the fuel	Check and rule out, it is recommended to add oil-water separator
The unit can not be shut down	Fuel, air filter	Check and replace the three filters regularly
	It's a governor malfunction	Please authorize personnel to repair
	The shutdown solenoid valve protects the shutdown action	Check the alarm content (code) , troubleshooting downtime
	Unit control panel (system) failure	Check and repair the unit control panel according to the operation instruction
Unit distribution open (unit gate) fault	Unit open automatic tripping	Due to the unit overload (short circuit) caused by the open jump valve
		Analysis of switch-controlled electric valve
		Unit gate itself failure, must be maintained or replaced
	The unit can not close when open	After overloading (short circuit) jump valve, need to buckle again to close the valve
		Parallel machine control, non-synchronous valve can not be closed
		Unit brake failure, must be maintained or replaced
Control screen failure	Unit alarm shutdown	The control panel detects the unit fault and shuts down, eliminates the fault, and restarts the unit after power

		off (reset)
	Power failure, the unit did not start	The ATS control system failed to provide a“Power on” signal to check and troubleshoot
		Self-starting oil engine instrument, must be on power and work in the“Automatic” state
		Control tie line connection method error, check, correct connection method
		Self-starting oil engine instrument failure, repair or replacement
	The power supply is normal and the unit can not be shut down	The unit is in cooling operation (3 ~ 5 minutes)
		ATS provides“On” signal without shutting down, check for ATS failure
		The electromagnetic valve of oil circuit is set wrong by oil engine instrument
	Remote monitoring can not be implemented	Confirm whether the unit according to“Three remote” control configuration
		Make sure the communication line connection is correct
		Verify that the unit communication software is correctly installed on the control network computer
		Whether the communication is set according to the correct monitoring password
		“Three remote” oil engine instrument failure, repair or replacement
The shell is charged	Poor contact, low insulation resistance	With 500V Megohm meter measurement of insulation resistance, resistance value less than 1 megohm, should check the line insulation is not damaged

Voltmeter not reading	The phase line touches the case	Good contact between ground and zero wire. Check the wiring, connect the broken wire or replace the conductor.
	The generator does not produce electricity	Refer to the generator specification
	The fuse core is burnt out	Replace the fuse box and find out the cause
	Instrument damage	Replace the instrument and find out why
Components and contacts, contact overheating	Poor connection or open circuit	Find the short circuit and connect or replace the conductor
	Loose joint, poor contact	Check and connect
	Contact or contact burn oxidation	
Low insulation resistance	When a conductor or component is damaged, it will touch the ground and the insulation resistance will be zero.	Find out where the fault is. Replace the damaged components and remove the grounding fault
	The generator coil is damp	Dry the coil
	The distribution line is damp	Check the fault, wipe clean, dry or air-dry.
The unit vibrates too much	The center of the coupling is wrong	Adjustment Centre
	Installation of anchor screws or chassis is not stable	Installation of anchor screws or maintenance units
	Bearing damage	Repair or replace bearings
The signal light is not on	Poor contact with bulb or lampholder	Check for repair
	The bulb is damaged	Change the light bulb
	The line is open	Check for repair

The electric generator feedback form

Unit type:			Unit number
Date of purchase:			First Boot/debug date:
Distributor:			Debug service personnel
用户信息	Name:	Postcode:	
	Address:	Telephone (fax) :	
	Contact:	E-mail:	
	Introduction to use (condition, place, main/standby, etc) :		
The evaluation, opinions and requirements of the unit	Evaluation:		
	Comment:		
	Requirements:		
	Others:		

Parts Support	Type of filter			
	Air filter model			
	Type of combustion filter			
	After confirming the model by our company, we will inform the user in time!			

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