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1. 注意事项

大量事故是由于在没能理解或阅读《使用说明书》进行错误的安装、操作、检查或保养造成的。在开始操作机器之前仔细阅读《使用说明书》尤为重要。换言之，请不要在没有阅读《使用说明书》的情况下，进行安装，检查和维护。

1.1 总则

仔细阅读理解使用说明书和机器上的警告标签。

- 保持警告标签放置明显位置及其清洁
- 如果标签打卷或模糊，请替换新标签
- 学习并牢记正确的操作方法
- 设备须放置在正常环境中
- 在没得到生产商认可的情况下，不能私自改动设备
- 只有专业人员才可以检查、维护或操作机器
- 当他人操作设备时，原始使用者必须对他人进行指导，并将指导说明书转交他人

1.2 运输中注意事项

- 当采用车辆运输时，将把手与车辆（卡车）的围栏固定

Precautions

Most of accidents occurs due to wrong installation, operation, inspection or maintenance without understanding or reading the operation manual. It is very important to peruse this operation manual before you start touching machine. In another words, do not install, operate, inspect, maintain the machine without reading this operation manual.

1.1 GENERAL

Peruse and understand this operation manual and warning labels adhered to the machine.

- Keep the warning labels on the machine clean and visible.
- Replace into new labels if labels are peeled or became invisible.
- Study and memorize correct operation method.
- Keep the machine always normal condition.
- Do not modify the machine without manufacturer's recognition.
- Specialized person can only touch or operate the machine.
- When third-person touch or operate the machine, the original user must instruct on machine and give this operation manual to the third-person.

1.2 CAUTIONS FOR TRANSPORTATION

- Tie the hedge of pulling handle to vehicle(truck) when transportation by a

- 不要捆绑把手中间位置，否则会造成把手扭曲
- 抬升机器，请不要吊钩把手，而是机器上方的吊环
- 如果机器安装车轮（可选），确认安装制动轮

1.3 安装注意事项

- 水平安放机器。最大斜度为 5°。
- 为避免空气进/出气口受阻，机器应安放在离墙距离至少 30cm 之外。同时确认进/出气口不能有障碍物。一旦堵塞，可能造成发动机过热
- 沙地操作机器时，请在地面与机器之间放置木板以防沙土进入设备。沙土会造成发电机绝缘不良
- 发动机排出的废气对人和动物有害。不要在通风不畅的地方操作机器，比如小型车间，隧道，这可能造成人和动物死亡。
- 因为该设备不属防水型，所以请不要在雨天或潮湿环境中安装使用
- 不要在设备附近放置任何易燃物品，如火柴，卷烟或油类

1.4 操作注意事项

vehicle.

- Do not tie the middle of pulling handle, it may contort the pulling handle.
- Do not hook the pulling handle when you lift the machine. Be sure to hook the lifting hook arch on the top of machine.
- When wheels are equipped (option), make sure to put wheel-stopper.

1.3 CAUTIONS FOR INSTALLATION

- Install machine horizontally. The maximum gradient is 5°
- In order not to block the air inlet and outlet, install machine at least 30 cm away from the wall. Also check if there is any obstacles blocking air inlet and outlet. If those are blocked, engine may be over-heated.
- When you operate the machine on sandy soil, put wooden plate etc. On the ground to avoid sand coming into the machine. The sand may give alternator some insulation troubles.
- Engine exhaust gas has poisoning ingredient to people or animals. Do not operate the machine in bad air-ventilated area such as small workroom or tunnel, which may kill people or animals.
- This machine is not water-proof type, so do not install it in rainy weather or other wet condition.
- Do not put any inflammables such as matches, cigarette or oil etc. Near the machine.

1.4 PRECAUTIONS FOR OPERATION

- 正确佩戴防护衣，比如皮革手套，保护眼镜等
- 在启动设备之前，连接全部必要电缆
- 不要使用破损或老化电缆。
- 检查燃料。如需加注，在启动之前进行加注，加注后，洒溅在机器上的燃料必须擦干，确保机器的干燥与清洁。
- 请注意以后章节的所有事项。如果存在不良配件，应及时修复或替换

1.5 操作过程中的注意事项

- 在操作过程中或发动机刚刚停机时，排气管和其内部非常炙热，不要接触这些部分
- 不要在雨天、泥泞地面或其他潮湿环境下操作设备。不要使用湿手接触设备。这将造成漏电或电击，导致身体和设备受损。
- 在操作过程中，不要接触输出端子。电击会导致死亡。

1.6 产品的保管注意事项

- 擦洗机器时，不要浸泡电气部分，比如控制面板或交流发电机。擦洗机器时，请在电气部分放置防水挡板

- Wear proper protective clothes such as leather gloves, protect glasses, etc.
- Connect all necessary cables before you start engine.
- Do not use injured or old cables. Please repair or replace into new cables.
- Check the amount of fuel oil, and add if necessary before operation. After refueling, spilled fuel on the machine must be wiped off, be sure to keep machine dry and clean.
- Inspect all points defined in later chapter. Repair or replace if there are any defective parts.

1.5 CAUTIONS DURING OPERATION

- During operation or right after engine stops, exhaust muffler and its room become very hot. Never touch those parts during operation.
- Do not operate machine in rainy weather, on muddy ground nor other wet condition. Do not touch the machine with wet hands. Those cause electric leakage or electric shock to your body (others' as well) and damage to the machine.
- Do not touch output terminals during operation. Electric shock can kill.

1.6 CAUTIONS FOR THE CUSTODY OF MACHINE

- When you wash the machine, do not soak the electrical parts such as control panel or alternator. Please put water-proof sheet on the electrical parts when you wash the machine.

- 机器贮藏房间应当无尘、低湿度、平坦封闭
- 当机器需要长时间储存，拆除蓄电池，并修理相关零件，以便下次使用
- 至少每三个月按照规定保养（运行）发动机一次


2 安全


请仔细阅读理解以下安全标记，以便安全有效操作。


我方按照危险强弱程度，将安全标记设置

如下（**危险** 、**注意** 、**重要** ）

一旦发现这些标记，敬请留意说明，并遵守如下指导

危险 ：错误操作可能引起重伤，甚至可能导致死亡。




注意 ：错误操作可能引起中度/轻度人身损害，或/和引起设备损害

重要 ：尽管不会导致事故或/和问题，可能会影响机器性能和寿命


- The storage room for the machine should have no dust, less humidity, fiat and horizontal floor, and ceiling.
- When you put the machine in storage for a long time, remove battery from the machine and repair all necessary parts for the next operation.
- Conduct maintenance operation (run engine) at least once for 3 months.


FOR SAFETY


Please peruse and understand following cautions for the safe and effective operation. We put on several labels concerning the degree

of danger as **WARNING** 、**CAUTION** 、**IMPORTANCE** 

In case you find these labels, note the message, and be sure to follow the instruction stated on.

WARNING  Mis-operation may cause serious injury so far as to death (maybe) to the operator.

CAUTION  Mis-operation may cause medium or slight injury to the operator and/or cause trouble, breakdown etc. of machine.

IMPORTANCE  This label calls the operator's attention concerning the performance and life of the machine itself, regardless of accident and/or trouble.

务必遵守以上规定。然而，该说明书不可能涵盖所有安全规程。对于所有操作维护人员，操作者本人一定要注意安全。

2.1 操作前注意事项

危险



：注意电击/漏电

- 禁止将设备输出端子与市电连接，可能导致电击、设备损坏和火灾。
- 确认设备放置良好。安装在潮湿地面、铁质框架和平台上可能导致电击。
- 连接负载时，确认电缆绝缘良好。连接牢固，否则可能导致电击或/和火灾。

危险



：注意通风

- 发动机排出的废气有害。要注意通风状况，不允许在通风不良的场所中使用，比如小型车间和/或隧道，否则可能造成人畜死亡。

危险



：蓄电池的处理

- 远离火源。因为电池产生氢气，所以不要吸烟和打火，否则可能引起爆炸。确

Do obey the above instructions. However, this manual is not almighty for the safety operation. Please note it is fundamental for all who are in charge of operation and/or maintenance to pay full attentions to the safety by yourselves.

2.1 CAUTIONS BEFORE OPERATION

WARNING



：PAY ATTENTION TO

THE ELECTRIC-SHOCK AND/OR LEAKAGE

- Never connect output terminal of the machine to commercial source. It is prohibited by the law, and may cause electric-shock, trouble of machine and fire.
- Be sure to ground machine itself and load. Installing on damp ground, iron-frame and iron-plate may cause electric-shock.
- For the connection of load, be sure to use new covered-wire and properly insulated cable against voltage. Connect cable firmly, unless otherwise may cause electric-shock and/or fire.

WARNING



：PAY ATTENTION TO

THE VENTILATION

- Engine exhaust gas is poisonous. Take special care of ventilation and do not use machine in ill-ventilated place such as small work-room and/or tunnel, which may kill people and animal, as well.

WARNING



：HANDLING OF

BATTERY

- Keep off fire. Do not smoke and spark, because battery generates hydrogen-gas

保电池在通风良好的地方充电。禁止使用金属短接极性来检查蓄电池。

- 为避免爆炸，不要对冷冻电池充电。如果对冷冻电池充电，首先预热蓄电池 16-30℃，然后充电。
- 蓄电池液为稀释硫酸。小心操作，否则可能被灼伤。穿戴保护手套和目镜。如果蓄电池液溅落在衣服/皮肤上，立即用大量水冲释。如果溅落在眼中，要立即冲洗并去医院检查。如果延误，可能失明。
- 如果丢弃蓄电池，请遵守国家相关法律和规定

注 意



：遵守安全规程

- 阅读《使用说明书》和标记，理解说明书内容。
- 保持警告标记的清洁，如有损坏和打卷，立即更换新标签。
- 在没有生产商的认可和授权下，禁止对设备进行改动。
- 该设备仅用于电源提供，其他用途可能导致严重问题和危险。

注 意



：保持身体和心情良好

etc, which may be in danger of explosion. Be sure to charge battery in well-ventilated place. Never check battery by short-circuiting both terminals by metal fragment.

- Never charge frozen battery to avoid explosion. In case of charging frozen battery, warm battery up to about 16~30℃ then charge battery.
- Battery liquid is dilute sulphuric acid. Handle with care, otherwise you may be burnt. Wear protective gloves and glasses, should battery liquid be splashed on cloth and/or skin, wash off: immediately with large amount of water. In case the liquid may splash into eye, wash of immediately and have examined by doctor. Delay of proper treatment may lose of eye-sight.
- In case of disposing battery, follow the certain laws and regulation of your country.

CAUTION



：OBSERVE THE

INSTRUCTION FOR SAFETY

- Read this manual and caution labels and understand the instructions.
- Keep caution label always clean, if these should be broken and/or peeled off:, renew the label(s) immediately.
- Never modify and/or alter the machine without manufacturer's recognition and authorization.
- Use this machine only for the electric power supply, using for other purpose may cause serious trouble and danger.

CAUTION



：MAINTAIN GOOD

- 如果在疲惫或病态情况下工作，可能导致不可预料的故事或问题。

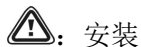
注 意



: 运输

- 采用合适的吊钩起吊。由于普通绳索不能承受设备重量，所以不要使用普通绳索起吊，否则有跌落危险，导致严重事故。
- 运输过程中保证设备与运输工具绑定牢固
- 在起吊之前，确保停机，否则不仅对设备造成致命损害，而且会带来重大事故。

注 意



: 安装

- 设备应放置安装在水平地面
- 设备不可倾斜。如果设备必须放置在斜坡地面，确认坡度小于 5°
- 设备不能安放于潮湿地方
- 如果设备安装在船上或海边，确认海水不会溅在设备上
- 如果设备用在沙地上，应保证沙土不会被吸入发电机和/或散热器中。

CONDITION OF BODY & SOUL

- Operating the machine in utmost tired condition or with a sickhead may cause unexpected accident or trouble.

CAUTION



:

DURING

TRANSPORTATION

- Use lifting hook fitted at the center of bonnet ceiling for lifting up and down. Don't use rope for hanging, because it cannot endure the weight of machine, which may be in danger of dropping the machine and may cause serious accident.
- Tie the machine firmly to the platform when transporting on vehicle (truck).
- Be sure to stop the machine before lifting up, otherwise may be in danger to cause not only fatal damage to each part of machine but may bring grave accident.

CAUTION



: INSTALLATION

- Place and/or install the machine on flat, level place.
- Don't incline the machine, should the machine be inevitable to use on a slope, be sure to keep the slant smaller than 5°.
- Never install the machine on damp or any place apt to stand rainy water, etc.
- In case of installing on the ship and/or sea-shore, be sure to avoid sea water to splash directly on the machine.
- In case the machine be used on sandy soil, be sure sand be never sucked into generator and/or radiator.

注 意



机器的堆放

- 如果需要堆放，要保证上方机器轻于下方机器。不要将两台机器堆放于另一台上方
- 堆放机器要保证地面平坦，并且地面能承受两台机器的重量
- 在堆放机器前，确保每平方的木材承受力相同不允许倾斜和/或滑动
- 禁止操作堆放中机器
- 一旦地震堆放机器有跌落危险。注意储存场所。

注 意



操作环境注意事项

- 避免不必要的阻碍，比如工具、电缆、板材和木材，否则会搅缠对人生安全造成危险

注 意



操作注意事项

- 在启动设备之前，检查确认如下指导说明。如果发现任何异常，请先维修，后操作。
- 在操作之前，忽视正确检查，或启动机

CAUTION



PUTTING A MACHINE

ON A MACHINE

- In case putting a machine on a machine, be sure upper machine is lighter than the based one, and never put 2 machines on one machine.
- In case putting a machine on a machine be sure the floor is fiat and has enough strength to endure the weight of 2 machines.
- Before putting a machine on a machine, be sure that each square timber is sharing equal weight of upper machine, shown by drawing, not inclined and/or slipped aside.
- Never operate the machine piled on the machine condition.
- Piled machines should be in danger of fall down in case of earth-quake etc. Pay full attention to the place of storage.

CAUTION



SAFETY FOR
SURROUNDINGS OF OPERATING THE
MACHINE

- Avoid any obstruction such as unnecessary tools, cables, sheets, timbers, which may cause accident by stumbling or caught one's leg, etc.

CAUTION



PRECAUTION FOR
OPERATION

- Inspect and confirm the following the instruction before starting the machine. If anything wrong may be found, be sure to repair and operate the machine.
- If you neglect proper inspection before

器没能意识到不正常情况，这都有可能造成元器件烧毁或难以预料的损坏。

注 意



安全着装

- 确定安全着装。太大衣服、没有扣紧袖、下垂的领带和围巾等，都有可能被机器旋转部件搅缠，十分危险。

注 意



使用安全附件

- 操作机器时，正确穿戴头盔，耳塞，安全鞋，手套和面具。

注 意



安全装置

- 准备好灭火器和急救包以防紧急情况发生。对急救室医生，火警和每位操作员的联系方式做下记录，以备及时使用。

2.2 操作中注意事项

危 险



禁止触摸端子

- 输出端子有数百伏的电压，不要触摸端子以防电击。
- 切换负载时，确保断路器放在“OFF”（关）的位置，停机后取下启动钥匙，然后连接和/或拆下电缆以防意外发生。操作者必须亲自保管启动钥匙，避免其他人启动机器。如果非熟练和/或无经验

operation and start machine not awareing any abnormal, which may cause burning of component or unexpected damage to the machine.

CAUTION



SAFETY CLOTHES

- Be sure to ware safety clothes. Too large clothe, unbuttoned cuff, drooped neck-tie and scarf, etc. may be caught in rotating part of machine and very dangerous.

CAUTION



: USE SAFETY

ATTACHMENT

- When operating the machine wear proper helmet, protecting goggles, earplug, safety shoes, glove and mask, etc.

CAUTION



SAFETY FIXTURES

- Prepare fire extinguisher and first-aid kit in case of emergency. Make notes of telephone number of emergency-doctor, fire station, and communication-chart of each operator for prompt communication.

2.2 CAUTIONS DURING OPERATION

WARNING



NEVER TOUCH OUTPUT

TERMINAL

- Output terminals has hundreds of voltage, don't touch terminal to avoid electric shock.
- Be sure to set breaker to 'OFF', stop machine and pull starting key off, then connect and/or detach cables in case of changing load etc. Starting key has to be kept at hand of the operator to avoid the

的人操作机器，将十分危险。

危险



：禁止接触控制面板

- 不要接触控制面板内部的元件，数百伏的电压非常危险
- 如果要检查控制面板内部，应当先停机然后拔掉启动钥匙。操作者必须亲自保管启动钥匙，避免其他人启动机器。

危险



：禁止接触旋转部件和三角

带

- 不要将手靠近旋转部分和/或三角带以防手（指）卷入

危险



：禁止接触风扇

- 不要将手靠近风扇，一旦手被卷入，可能致残。

注意



：不要打开散热器盖

- 在运行过程中，不要打开散热器盖，否则高温蒸汽可能喷出，造成烧伤。

注意



：不要接触任何高温部件

third person to start the machine. If unskilled and/or non-experienced person operates the machine, which is very much in danger of serious accident.

WARNING



： NEVER TOUCH

CONTROL PANEL

- Don't touch inside the control panel components, which have hundreds of high voltage and very dangerous.
- In case of inspecting inside the control panel, be sure to stop machine and pull starting-key off. Starting-key has to be kept at hand of the operator to avoid the third person to start the machine.

WARNING



： NEVER TOUCH

ROTATING PART AND V-BELT

- Don't get hand near the rotating part and/or v-belt to avoid hand or finger be caught inside the machine.

WARNING



： NEVER TOUCH

COOLING FAN

- Don't get hand near cooling fan, if hand is caught inside, you may be in danger to lose your finger.

CAUTION



： DON'T DETACH

RADIATOR CAP

- Don't open radiator cap during operation, otherwise steam of high temperature may spout out and be burnt.

CAUTION



： DON'T TOUCH ANY

PART OF HIGH TEMPERATURE

- 在运行过程中，发动机、排气管、消声器和散热器的温度可能会变得很高。不要接触它们，以免烫伤。
- 因为冷却液和机油温度会变得很高，所以在运行过程中，不要添加或查看冷却液和/或机油。

注 意



小心火灾

- 在燃料或机油附近，不要抽烟和/或划火柴。
- 在通风良好的开敞式场所加注燃料。
- 禁止在机器附近放置储油箱。不要溅出燃料，溅出的燃料要立刻擦干净。准备灭火器，以防紧急情况。

注 意



禁止打开排油开关

- 不要打开冷却液和机油开关

注 意



过载和不平衡负载。

- 如果断路器多次掉闸，可能由于过载在造成。在这种情况下，要减小负载重新启动
- 如果用单相负载，确保每相电流，保证负载平衡分配。
- 无论负载多大，使用额定频率操作发电

- Engine, exhaust Manifold, exhaust pipe, muffler and radiator may become very high temperature during operation. Be sure not to touch those parts to avoid injury by burning.
- Don't refill or inspect coolant and/or lube. oil during operation, because cooling water and lube. oil may become high temperature as well.

CAUTION



PAY ATTENTION TO THE FIRE

- Don't smoke and/or strike match near oils & fats, like fuel oil or lube. oil.
- Refuel under open-air with good ventilation.
- Be sure to stop the engine when refueling. Don't put storage tank near the machine. Don't spill fuel and spilt oil must be wiped off at once. Prepare fire extinguisher, in case of an emergency.

CAUTION



PROHIBITION OF OPENING DRAIN COCK

- Don't open drain cock of coolant and lube. oil.

CAUTION



OVERLOAD AND ILL-BALANCED LOAD

- If breaker shutdown many times, it may be overloaded. In such case, reduce load and start again.
- In case of using single-phase load, confirm current of each phase and be sure that each phase is sharing well-balanced load.
- Operate generator with rated frequency,

机。如果用低频操作，发电机可能被损坏。

※忽视上述事项，可能会导致发电机烧坏，引起火灾。

2.3 检查中注意事项

危 险



：悬挂卡片（检查中）

- 在检查之前，确保断路器断开，拔出钥匙并在机器的醒目位置悬挂卡片（检查中）。检查人员应当在检查过程中妥善保管起动钥匙。
- 拆下电池负极
- 忽视上述事项，在检查过程中他人操作机器可能导致事故发生，不仅造成人员受伤，设备也将受到损坏。

危 险



：调整三角带松紧程度的注

意事项

- 在调整三角带松紧程度之前，先停机，在拔出钥匙，并由操作者（或/和检查人员保管）
- 如果发动机不停止，可能造成严重伤害。

危 险



：冷却风扇注意事项

- 当在风扇附近检查时，确保停机，拔出钥匙。否则将有被冷却风扇卷入的危险，

regardless of the capacity of load. If operating with lower frequency than rated value, generator may be broken.

※Neglecting above cautions may cause burning of generator or cause fire.

2.3 CAUTIONS DURING INSPECTION

WARNING



：HANG THE CARD OF
[UNDER INSPECTION]

- Before inspection, be sure to set breaker off, pull starting key off and hang a card of [under inspection] on the attractive place of the machine, inspector should keep starting key by himself during inspection.
- Detach (-) side of battery, cable.
- Neglecting above cautions and the third person be start machine during inspection, serious accident may occur, which may injure not only people but damage machine as well.

WARNING



：CAUTION WHILE

ADJUSTING THE TENTION OF V-BELT

- Before adjusting the tension of v-belt, stop the engine without fail, pull starting key off, which should be kept by operator (and/or inspector).
- Unless the engine is not stopped, you may be caught in the belt and be injured seriously.

WARNING



：CAUTION AROUND

COOLING FAN

- When inspecting near cooling fan, be sure to stop the engine and pull key off.

造成严重伤害。

危 险



：压缩空气清洗时注意事项

- 在清理灰尘或垃圾时，戴上防护镜，将压缩气塞入空滤中清理。

危 险



：灯具的使用

当在漆黑和难辨认的地方检查时，灯具必须作安全防护。如果通过摸索或感觉操作可能导致意外事故。如果用普通灯具，没有安全防护，破损后可能引燃燃料，导致火灾。

注 意



：打开和拆卸散热器盖

- 当要打开和拆卸散热器盖时，停止发动机，待到机器足够冷却。缓慢打开散热器盖减缓内部压力，否则散热器盖可能被顶起，热气喷出，导致烧伤或其他事故。

注 意



：打开冷却液开关

- 当打开冷却液排放开关，停机确保冷却液充分冷却。如果冷却液未被充分冷却，开水喷出造成烫伤。

注 意



：加注和/排放机油

Otherwise, you may be in danger to be caught by cooling fan and seriously injured.

WARNING



： CAUTION WHEN

CLEANING WITH COMPRESSED AIR

- Wear protective goggles when cleaning dust or rubbish stopped up air filter with compressed air.

WARNING



： USE OF LIGHTING

UTENSILS.

Use light with safety-guard when inspecting dark and poor visible place. Handling machine by groping or with the sixth sense may cause unexpected accident. If using regular, not guarded light, breaking may ignite fuel etc, and cause fire.

CAUTION



： OPENING & DETACHING

RADIATOR CAP

- When opening and detaching radiator cap, stop the engine and confirm the machine is cooled enough. Open cap slowly decreasing pressure inside, otherwise cap may blow off and hot steam may spout out, which may cause burnt or other accident.

CAUTION



： OPENING DRAIN COCK

OF COOLANT

- When opening coolant drain cock, stop the engine and confirm coolant is cooled enough. If coolant has not cooled enough, boiled water may spout and you may be burnt.

CAUTION



： REFUELING AND/OR

DRAINING OF LUBE. Oil

- 在停机 10 到 20 分钟之后，待到发动机完全冷却后，方可检查机油位置。
- 在运行过程中和刚刚停机后，机油温度极高，由于油盘压力，高温机油可能涌出，造成烧伤。

注 意



清理中注意事项

- 当清理机器时，确保电气和电子部分（比如控制面板，发电机）覆盖完好，以防被水溅射。否则，绝缘老化，造成严重问题。

注 意



废弃液体倾倒

- 废弃液中含有有害元素，不要将其倒在路面，河流，池塘和海边，这样不仅国家严令禁止，而且会造成环境污染。
- 当排放废弃液时，确保倒入正确容器
- 一旦倾倒废弃液，将违反国家法律和有关规定

- Inspection of amount of lube. oil should be done 10 to 20 minutes after stopping the engine and the engine is cooled down enough.
- Lube. oil has become very high temperature during operation and just after stopping the engine. Moreover, pressure given to oil-pan may gush such high temperature lube. oil and may cause burnt.

CAUTION



: CAUTION DURING
CLEANING THE MACHINE

- When cleaning the whole machine, be sure to cover electrical and electronical parts such as control panel and generator should not be splashed with water. Unless otherwise, insulation will be deteriorate, which may cause many serious troubles.

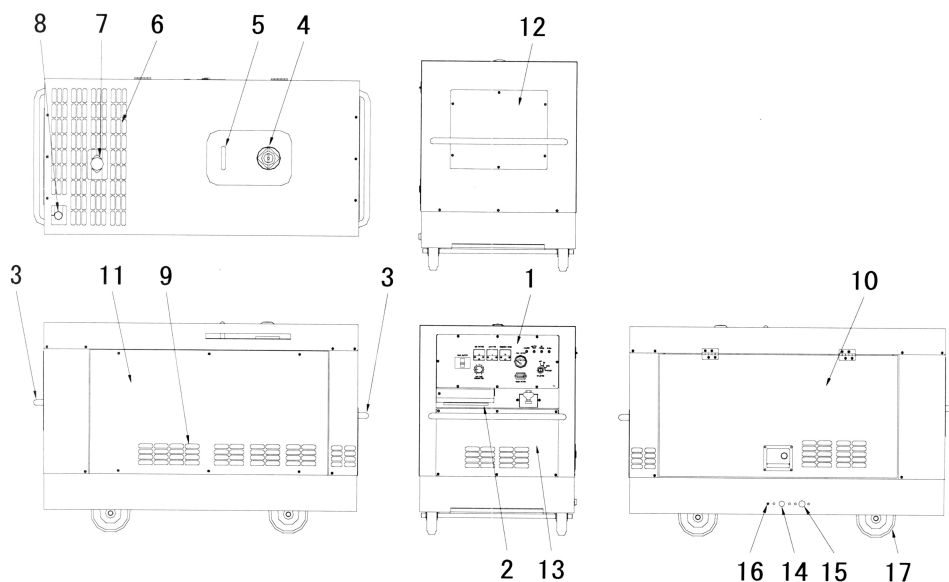
CAUTION



: DISPOSING WASTED
FLUIDE

- Wasted fluid is containing poisonous element, do not dump on the ground, in the river, pond and sea-shore, which is not only prohibited but cause environmental pollution.
- Be sure to pour wasted fluid into proper container, when draining from the machine.
- Obey the right Laws and regulations in case of disposing wasted fluid.

3、零件名称 3. NAME OF COMPORNENTS



3.1 外形图及名称

3.1 EXTERIOR & EACH NAME

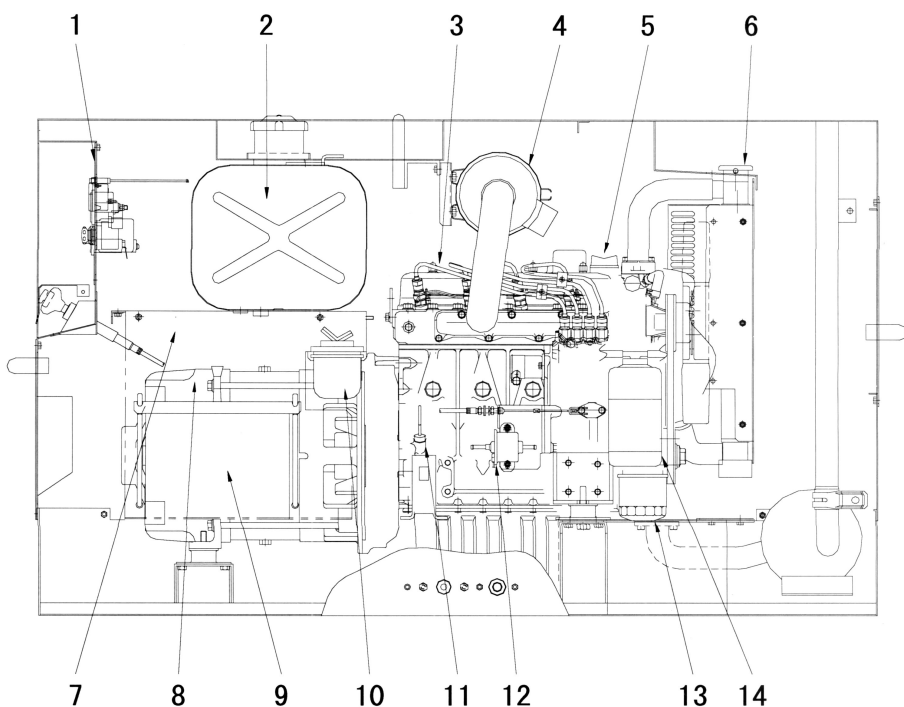
编号 No.	名称 NAME	编号 No.	名称 NAME	编号 No.	名称 NAME
1	控制面板 CONTROL PANEL	7	冷却液加注口 COOLANT INLET	13	发电机检查罩 GENERATOR COVER
2	接线端子 BODY EARTH	8	消声器 EXHAUST MUFFLER	14	排机油孔 OIL DRAIN
3	把手 PULLING HANDLE	9	空气进气口 AIR INLET	15	排水孔 WATER DRAIN
4	燃料加注口 FUEL INLET	10	门 DOOR	16	排燃料孔 FUEL DRAIN
5	吊环 LIFTING HOOK ARCH	11	检查罩 INSPECTION COVER	17	车轮（可选） WHEEL (OPTION)
6	空气出口 AIR OUTLET	12	散热器盖 RADIATOR COVER		

3.2 零件及名称

3.2 COMPONENTS & EACH NAME

(1) 结构图

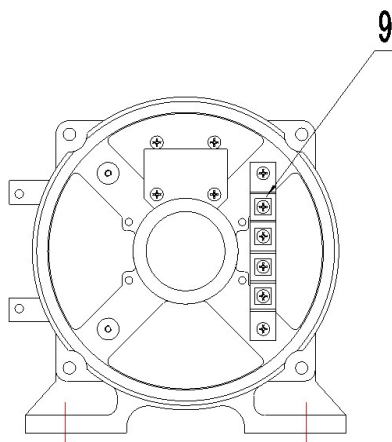
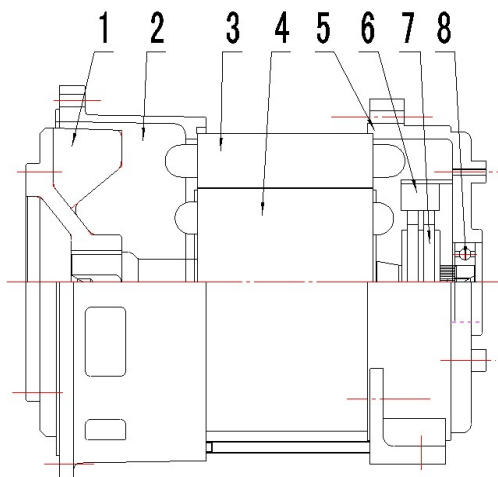
(1) STRUCTURE FIGURE



编号 No.	名称 NAME	编号 No.	名称 NAME
1	控制面板 CONTROL PANEL	8	发电机 GENERATOR
2	油箱 FUEL TANK	9	蓄电池 BATTERY
3	发动机 ENGINE	10	燃油滤清器 FUEL FILTER
4	空滤 AIR FILTER	11	机油标尺 OIL LEVEL GAUGE
5	机油加注口 OIL INLET	12	燃油泵 ELECTRIC FUEL PUMP
6	散热器 RADIATOR	13	机油滤清器 OIL FILTER
7	支撑件（从反面看） SUPPORT PARTS (OPPOSITE SIDE)	14	补水箱 RESERVE TANK

(2) 发电机

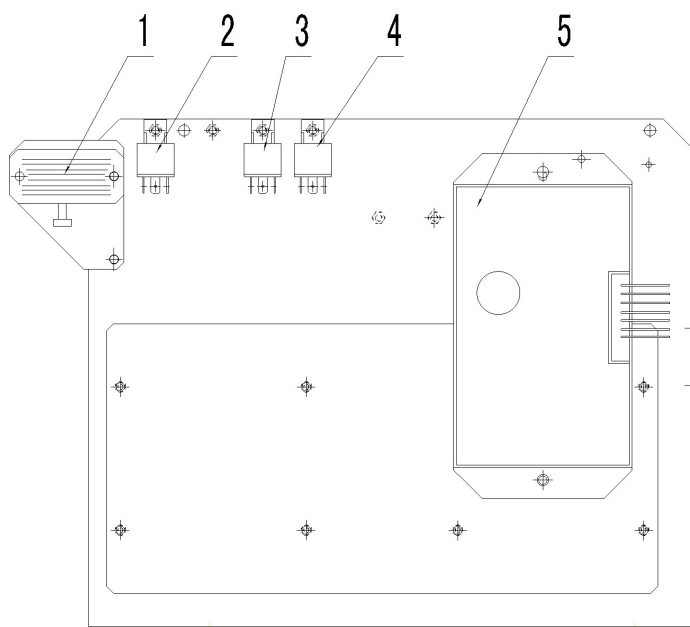
(2) GENERATOR



编号 No.	名称 NAME	编号 No.	名称 NAME
1	风扇 FAN	6	碳刷 CARBON BRUSH
2	前端盖 BRACKET FRONT	7	集电环 SLIP RING
3	定子 STATOR	8	轴承 BEARING
4	转子 ROTOR	9	接线排 BLOCK
5	后端盖 BRACKET REAR		

(3) 支撑件

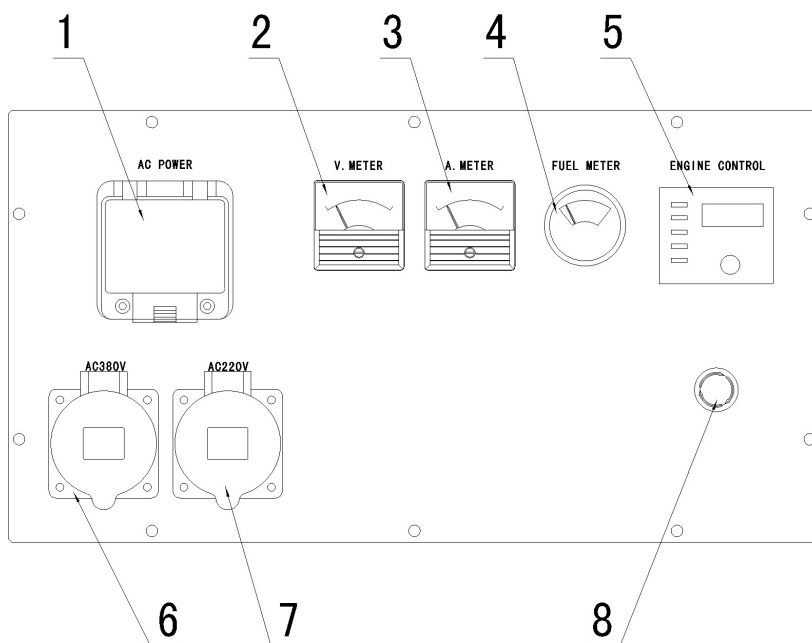
(3) SUPPORT PARTS



编号 No.	名称 NAME	编号 No.	名称 NAME
1	发动机控制单元 ENGINE CONTROL UNIT	4	自动电压调节器 AVR
2	预热继电器 GLOW RELAY	5	端子 TERMINAL
3	起动继电器 TIMER		

3.3 控制面板

3.3 CONTROL PANEL



编号 No.	名称 NAME	编号 No.	名称 NAME
1	主开关 MAIN SWITCH	5	发电机控制器 CONTROL UNIT
2	电压表 VOLT METER	6	三相输出插座 SOCKET, 3-PHASE
3	电流表 AM METER	7	单相输出插座 SOCKET, 1-PHASE
4	燃料表 FUEL METER	8	急停按钮 EMERGENCY STOP

3.4 报警装置，异常指示灯和保护系统

为避免在机器出现严重损坏，配有保护装置，警告指示灯如下：

保护装置和警告
Protecting devices and warning

情况 CONDITIONS	灯 LAMPS	发动机 ENGINE
油压过低（小于 $98 \pm 29 \text{kPa}$ ） Low oil pressure (less than $98 \pm 29 \text{kPa}$)	机油指示灯亮○ Oil lamp○	停止 Stop
冷却液温度过高（高于 $115 \pm 3^\circ \text{C}$ ） High coolant temperature (more than $115 \pm 3^\circ \text{C}$)	水温指示灯亮 Water lamp○	停止 Stop
充电不当 导线断开，松动 Charge defect. Lead snap, loose belt, etc.	充电指示灯亮○ Charge lamp○	停止 Stop

注 意



- 保护系统导致发动机停止，应当将钥匙开关旋转到“OFF”（关）位置。如果钥匙开关在“ON”（开）上，电池会放电。

WARNING



- Turn the key switch to [STOP] position when the protecting system stops the engine. If the key is left at [ON] position, battery will be discharged.

4. 运输

注 意



：运输中注意事项

- 用合适的吊钩挂在吊环上来提升和下降。由于普通绳索不能承受机器重量，因此不要用普通绳索起吊，这有可能造成机器坠落，导致严重事故。
- 当运输时，要将机器运输工具捆绑牢固。
- 在起吊之前，确保停机，否则不但会对机器造成致命损坏，还会带来严重事故。

(1)起吊机器

- 用合适的吊钩挂在吊环上提升和下降。由于普通绳索不能承受机器重量，因此不要用普通绳索起吊。
- 根据规格参数中的重量和尺寸数据来选择合适的卡车和/或起重机（参见第十章）
- 只有获得起重操作许可证的人员方可操作起重机

(2) 在卡车上固定

- 在机器前后将把手与卡车用绳索拴好。如果机器配有脚轮，应该安装制动器以防在运输过程中移动。

4. TRANSPORTATION

CAUTION



: CAUTIONS FOR

TRANSPORTATION

- Use lifting hook fitted at the center of bonnet ceiling for lifting up and down. Don't use rope for bunging, because it cannot endure the weight of machine, which may be in danger of dropping the machine and may cause serious accident.
- Tie the machine firmly to the platform when transporting on vehicle(truck).
- Be sure to stop the machine before lifting up , otherwise may be in danger of cause not only fatal damage to each part of machine but may bring grave accident

(1) LIFTING UP THE MACHINE

- Use lifting hook fitted at the center of bonnet ceiling for lifting up. Don't use handle for rope hanging to lift up the machine, which is not strong enough to endure the whole weight of the machine.
- Select proper truck and/or crane referring to the weight and measurement stated in specification; chapter10.
- The licensed driver can only drive the crane

(2) FIXING TO THE PLATFORM OF TRUCK

- Tie the handle fixed in front and the rear of the machine to the truck with rope. In case the machine is equipped with casters, make sure to set wheel-stopper to avoid moving the machine during transportation.

- 如果用绳索固定时，确保捆绑每个把手两侧，否则把手和机器都可能变形。
- 禁止使用绳索捆绑把手来起吊机器，它不能承受整个机器重量。

- When tied with rope, be sure to tie each end of handle, otherwise not only handle but the machine may deformed.
- Don't use handle for rope hanging to lift up the machine, which is not strong enough to endure the whole weight of the machine.

5. 放置

5. INSTALLATION

5.1 安装与环境

5.1 PLACE OF INSTALLATION & ITS CONDITION

危 险



：注意通风

- 发动机排出的废气有毒。不要将排气管朝向人和住所，以防排气导致严重事故。不要在通风不畅的地方使用，如隧道或小房间。

危 险



- 将机器放置在干燥，平坦的地方
- 不要倾斜机器。 如果不得不放在斜坡上，斜度要小于5°
- 避免放置在潮湿地面或靠近湖水附近，在这种地方使用可能引起电击
- 如果要将机器安装在船上和/或海岸，确保海水不会溅在机器上。
- 如果机器放置在沙地山，小心沙土被吸入发电机和/或散热器中

WARNING



：PAY ATTENTION TO THE VENTILATION

- Engine exhaust gas is poisonous. Don't face exhaust vent to people and houses as well to avoid serious accident caused by exhaust gas. Don't use the machine ill-ventilated place such as tunnel or small room.

WARNING



- Place the machine on dry, fiat and level place.
- Don't incline the machine. Should the machine be inevitable to use on a slope, keep the slant smaller than5° .
- Avoid installing damp ground and apt to pool water, using at such place may cause electric shock.
- In case of installing the machine on the ship and/or sea-shore, be sure to avoid sea-water to splash directly onto the machine.
- Should the machine be installed on sandy soil, take full care sand be never gotten into generator and/or radiator.

环境

在以下情况下，机器才能额定输出。确保在下列参数下使用。

环境温度：-15 至+40° C

相对湿度：小于 85%

海拔高度：小于 300 米

当在同一地方操作两台机器时，保持间距以使排出的废气顺利排放。此外，确保有足够空间去检查。

6. 操作

6.1 操作前的检查确认

注 意



- 在开始操作之前，检查机器情况。如果有任何不正常的情况发现，要及时修理并且在正常情况下操作。
- 忽略检查和在未检查的情况下操作可能导致零配件烧毁和/或火灾。

ENVIRONMENTAL CONDITIONS

The machine is regulated to deliver specified performances under the following site conditions. Be aware to use under below stated conditions.

Ambient temperature: -15 to +40~C

Relative humidity : Less than 85 %

Height above sea-level : Less than 300 m.

When operating 2 machines at the same place, be sure to have enough space so that exhaust gas of each machine be not get each other. Moreover, secure enough space for inspection.

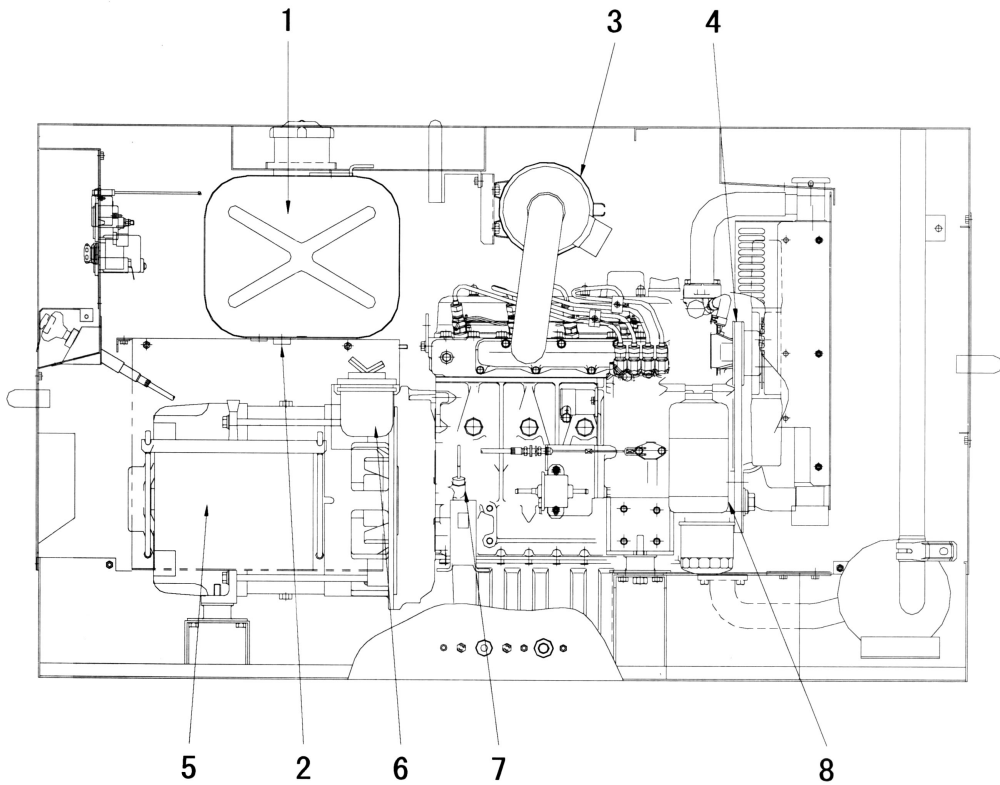
6. OPERATION

6.1 INSPECTION & CONFIRMATION BEFORE OPERATION

CAUTION



- Before starting operation, inspect the condition of machine without fail. Should any abnormal be found, repair immediately and operate the machine always with good conditions.
- Neglecting such inspection and operating not noticing any abnormal may cause burning of each part and/or fire.



(1)检查项目和位置

(1)INSPECTION ITEMS AND PLACES

编号 No.	项目 ITEMS	编号 No.	项目 ITEMS
1	燃料量 Amount of fuel	5	电瓶液面 Level of battery-liquid
2	油箱的储水排放 Draining of water pooled in fuel tank	6	燃油滤清器 Condition of fuel filter
3	空滤有无堵塞 Inspect the clogging of air filter element	7	润滑油位置 Check amount of lube. oil and replenishing
4	风扇皮带松紧 Tension of fan-belt	8	冷却水余量 Amount of cooling water

- 接地线的检查 Inspection of grounding, both machine body-earth.
- 导线的检查和确认 Inspection and confirmation of each wiring.

(2) 机油液面检查

- 确保机器水平放置，并且通过油标尺检查余量
- 操作完毕后，需检查润滑油余量时，首先要停机，并等待 10 至 20 分钟确保机器完全冷却。

机油余量检查(步骤)

- ① 拔出油标尺，用抹布擦拭干净
- ② 将油标尺插入曲轴箱，检查润滑油液面在“FULL”和“LOW”之间
- ③ 如果油位低于“LOW”，请加注至合适位置。
 - 同时，检查润滑油的是否太脏，如果太脏和/或过期，请更换新机油

(3) 冷却水的检查

注 意



散热器盖的拆卸

- 当打开和拆卸散热器盖时，停机并确认机器充分冷却。缓慢拧松散热器盖减小内部压力，否则散热器盖可能被吹跑，热气喷出，导致烧伤或其他事故。
- 检查补水箱水位，如果短缺，请填注至正常液面。（高于“LOW”）。如果补水箱冷却液接近空缺，在给水箱加注冷却液的同时，也在散热器中加注。

(2) INSPECTION OF LUBE. OIL LEVEL

- Keep the machine horizontal and check the amount of lube. oil by level-gauge.
- Inspecting amount of lube. oil after operation, stop the engine at first and wait 10 to 20 minutes so that the machine is cooled enough.

How to check amount <procedure>

- ① Pull oil level gauge out and wipe off oil by cloth.
- ② Insert level gauge into oil pan and check the stain is marked between "FULL" and "LOW" mark, which is normal level.
- ③ in case stain marks lower than "LOW" mark, replenish lube. oil to the right amount.
 - Inspect the dirt of lube. oil at the same time, when it is found dirty and/or expire of exchange period, exchange lube. oil to fresh one.

(3) INSPECTION OF AMOUNT OF COOLING WATER

CAUTION



DETACHING RADIATOR

CAP

- When opening and detaching radiator cap, stop the engine and confirm the machine is cooled enough. Loosen cap slowly decreasing pressure inside, otherwise cap may blow off and hot steam may spout out, which may be cause burnt or other accident.
- Inspect the amount of reserve tank and if found shortage, replenish water to the regulated level. <higher than "LOW" level>. If coolant amount of reserve tank be found almost empty, supply coolant into radiator, as well as reserve tank.

注 意



L.L.C. (防冻液) 的操作

- 防冻液有毒。
- 一旦误吞，立即吐出，并及时去医院检查。
- 如果防冻液溅入眼中，用大量水冲洗并立刻去咨询医生。
- 在醒目地方给防冻液标注“有毒”字样，并封闭完好，放在孩童不方便接触到的安全地方。
- 防冻液已被确认为危险品，在操作、存储和处理时，应当注意遵守相关法律条款。

重 要



防冻液的使用和质量

- 冷却水要采用干净的高质量的软水。不要使用泥水（包括污水，盐水，硬水和地下水）。这种水不适合充当冷却水，可能阻碍水流，导致过热。
- 如果机器用于寒冷地带，请根据如下比例配制防冻液。
- 根据环境温度调节浓度。
- 使防冻液比例在全部冷却水总量的 35% 至 60%。防冻液在冷却水中的比例超过 60% 时，可能减弱防冻效果。

CAUTION



HANDLING OF LLC.

(LONG-LIFE COOLANT: ANTIFREEZE SOLUTION)

- LLC. is poisonous.
- Should anyone drink by mistake, vomit it at once and consult a doctor immediately.
- If L.L.C. be spilt into eye(s), wash with large amount of water and consult a doctor at once.
- As for storing L.L.C., mark "L.L.C." <Poisonous> clearly, shut tightly and stock safety place where children cannot approach.
- LLC. Is appointed as a dangerous object, handling, stocking and disposing should obey the certain regulation and laws.

IMPORTANCE



QUALITY OF COOLING

WATER AND USE OF L.L.C.

- Use clean and soft water of high quality for cooling water. Don't use muddy water including rubbish, salty water and hard water as underground water. Such water is not suitable cooling water and may prevent smooth current of water and cause overheating.
- Mingle L.L.C. according to the ratio shown below, in case the machine be used in cold place where in fear of freezing of cooling water.
- Adjust the density according to the ambient temperature.
- Mingle L.L.C. Within the ratio of 35 to 60 % of whole amount of cooling water. Over 60 % of L.L.C. in cooling water may decrease anti-freeze efficiency.

配置标准

<STANDARD MINGLING RATIO OF L.L.C.>

环境温度 AMBIENT TEMPERATURE	比例
-20℃ To -20℃	35%
-40℃ To -40℃	55%

(4)燃料检查

注意



严禁烟火

- 在燃料附近，禁止抽烟和/或滑火柴。燃料属易燃物，一旦接触明火，十分危险。
- 当加注燃料时，要停止机器。不要将油桶放置在机器附近，燃料不要溅在机器上。溅上的燃料必须擦拭干净，确保机器清洁。
- 请在敞开或通风良好的地方加注燃料。

重要



燃料油的选择

- (建议燃料)

(4)INSPECTION OF FUEL OIL

CAUTION



NO FIRE

- Don't smoke and/or strike match near fuel oil. Fuel oil is inflammable and very much in danger to catch fire.
- When replenishing fuel, make sure to stop the engine. Don't put fuel tank near the machine and take care fuel oil is not spilled on the machine. Spilt oil must be wiped off and keep machine always clean.
- Replenish fuel oil under the open air or well-ventilated place.

IMPORTANCE



SELECTION OF FUEL OIL

- (Recommended fuel oil)

英国 UK	美国 USA Federal	美国 Asim	美国 SAE
BS2869: 1967	VV-F-800a	D975-66T	SAEJ313
BS 2869: 1967	VV - F - 800a	D975 - 66T	SAE J313
等级: A1 或 A2	等级 DF-2	编号 2D	编号: 2D
Class A1 or A2	Grades DF- 2	Numbers 2D	Numbers 2D

- 操作之前，确保燃料充足，如果短缺及时补充，避免操作中中断
- 加注燃料后，要旋紧油箱盖。溅出的燃料要擦拭干净，避免火灾，保持机器清洁。
- Before operation, confirm the amount of fuel oil and replenish if shorted, to avoid interrupting operation by refueling.
- After refueling is over, fasten fuel tank cap tightly and check around. Spilt oil must be wiped off to avoid catching fire, and keep machine clean.

(5)油箱中积水的排放

- 打开安装在油箱底下的排水开关，将油箱中的积水排放干净。
- 旋紧开关，确保积水排放干净。
- 积水中含有柴油，排放时要注意遵守相关规定和法律

(6)燃油滤清器的检查

- 当油滤吸水后，其作用可能退化。松开螺母，卸下油滤并倒出积水。如果油滤过脏，替换新油滤。

(7)电瓶液面的检查

- 查看电瓶液面是否与规定相符。如果发现短缺，填注蒸馏水至标准位置

(8)空滤的检查

重 要



: 清洗空滤

- 一旦空滤配件堵塞和/或损坏，灰尘和/或垃圾可能被吸入发动机，并加快转动部分的磨损。
- 关于清洗和检查的详细情况，请参阅说明书 7-4 (3)

(5)DISCHARGING WATER POOLED INTO FUEL TANK

- Open drain cock placed bottom of fuel tank, and discharge water pooled in fuel tank.
- Fasten cock tightly confirming pooled water is drained completely.
- Drained water from fuel tank includes diesel light oil, dispose it observing the certain regulations and laws.

(6)INSPECTION OF FUEL FILTER

- Function of fuel filter may deteriorate when filter has collected water. Loosen ring-nut, detach filter and pour out water. In case much dust or rubbish is collected, replace filter with a new one.

(7)INSPECTION OF LEVEL OF BATTERY LIQUID

- Check level of battery liquid whether it is at regulated level or not. If shortage is found, replenish distilled water to the regulated amount.

(8) INSPECTION OF AIR FILTER ELEMENT

IMPORTANCE



: CLEAN AIR FILTER ELEMENT SECURELY.

- In case element is choked up and/or broken, dust, dirt and/or rubbish may sucked into the engine, and hasten defacement of moving part.
- As for the details of cleaning and inspection, refer to the instruction given in this manual, chapter 7-4 (3).

●

(9)三角带松紧程度的检查

重 要



- 确保三角带松紧适当，太紧会使轴损坏和/或加速缩短轴承寿命。如果太松，皮带的滑落也会缩短其寿命。
- 通过手指压在风扇皮带轮和发电机皮带轮之间来确定皮带的松紧程度。松弛时，5mm/49N 为正常。调节时，拧松发电机螺栓，将发电机调整到合适位置。调整完毕后，紧固发电机螺栓。如有任何松动和/或磨损，应当替换。
- 检查皮带表面，并将其上的油污，冷冻液擦拭干净。

(10)接地及断路器的检查

检查并确保机器的地线、断路器和负载正确配置

(11)线路检查

检查导线绝缘皮是否破损，确保线路无断路和短路。

(9) INSPECTION OF TENSION OF V-BELT

IMPORTANCE



: CLEAN AIR FILTER

ELEMENT SECURELY

- Keep proper tension of v-belt, too tight tension results breaking of shaft and/or hasten the life of bearing. And if the tension is looser than normal, slipping of belt may shorten its life.
- The normal tension of belt confirmed by pressing between the fan pulley and alternator pulley with fingers, as shown in drawing. It is normal when slacking by about 5mm and about 49N. For adjustment, loosen alternator bolt and move alternator to get normal tension. After adjusting, make sure to fasten alternator bolt firmly. If any crack and/or wear be found with the naked eyes, replace with the new one.
- check surface of belt, and wiped off adhered fats & oil, L.L.C. completely.


(10) INSPECTION OF GROUNDING OF MACHINE BODY-EARTH AND ELECTRIC CIRCUIT BREAKER

Inspect and confirm machine body-earth, electric circuit breaker and load are properly grounded.

(11) INSPECTION OF WIRING

Check and confirm damage of wire-cover, breaking of wire, disconnection and/or short-circuit of wiring.

6.2 启动与停机

危险 : 不要打开输出端子的保护

盖

- 在运行过程中，应闭合并锁紧输出端子保护盖
- 如果操作中，保护盖打开，身体部位碰到后会有触电危险。

注意 :

- 在运行过程中，要将门关闭紧锁。
- 如果在运行中必须开门，注意不要碰到旋转和高温部分。一旦碰到，可能会导致烫伤和/或重伤。

重要 :

- 启动发动机后，在空载怠速状态下运行 5 分钟。
- 在怠速情况下，预热机器是很有必要的。如果忽视预热操作，而在全载下运转可能会缩短发动机寿命。
- 在怠速时，检查确保紧固件没有任何松动，冷却水，燃料和润滑油没有任何泄漏。
- 同时，所有警告指示灯是熄灭状态。

(1) 启动步骤

- ① 将断路器放在“OFF”（关）的位置
- ② 将调速杆推到“怠速”位置，通过按下调

6.2 START AND STOP

WARNING : NEVER OPEN OUTPUT

TERMINAL COVER

- Make sure to close and lock output terminal cover, during operation.
- Operating with that cover opened, some part of body be in danger to touch, which may cause electric shock.

CAUTION :

- Close and lock all doors during operation.
- if there is no option but to operate with doors open, take care not to touch rotating part and part where may become high temperature. Touching such places may got burnt and/or serious injury.

IMPORTANCE :

- After starting the engine, do idling for about 5 minutes without any load.
- This idling operation is necessary to warm up the engine. Neglecting warming-up operation and operating the machine with full-load may shorten the life of the engine.
- While idling, check and confirm there is no loosening of fixture, no leakage of water, fuel & lube. Oil.
- At the same time, confirm all the alarm lamps are off.

(1) STARTING PROCEDURE

- ① Set breaker to "OFF"
- ② Push lever into "IDLING" position, by

速按钮来调速（选配）

③插上钥匙开关，向右旋转到“运行”位置，然后油压、充电和预热灯开启。当预热结束后，预热灯会熄灭。预热时间根据冷却水温的不同而变化。

预热时间与水温的关系（仅供参考）

水温 大概预热时间

50° C 1 秒

20° C 2 秒

0° C 4 秒

-15° C 6 秒

④预热灯熄灭后，便可马上旋转钥匙开关到“START”（起动）位置，开启发动机。起动发动机后，在怠速位置上运行 5 分钟

⑤怠速后，通过推锁顶钮来拉动调速杆直到发动机到达额定转速。但是，这种控制只能粗调，精细调节可通过旋转调速杆来调节。

(2)操作过程中，指示灯状态

当起动开关在“运行”位置上，每个指示灯的正常指示如下：

pushing button of speed control lever (option).

③ Put starting-key into key-hole and turn to the right by 1 step, "OPERATION" position, then oil press., charging and pre-heat lamps of monitor lamps will light. Pre-heat lamp will off when pre-heating is over. Pre-heating time differs from the temperature of cooling water. PRE-HEATING TIME RELATING TO THE WATER TEMPERATURE<FOR REFERENCE)

Water temperature Approx. pre-heating time

50 °C about 1 second

20 °C about 2 seconds

0 °C about 4 seconds

-15 °C about 6 seconds

④Right after the pre-heat lamp is off, start the engine at once, by turning starting-key to the "START" position. After starting the engine, do idling for about 5 minutes.

⑤After idling is over, pull speed control lever by pushing button, till engine reaches to its rated speed. However, this control is rather rough, make fine adjustment of speed by turning speed control lever.

2) INDICATION OF EACH MONITOR-LAMP DURING OPERATION

NORMAL INDICATION OF EACH LAMP WHEN THE STARTER SWITCH IS AT OPERATION" POSITION.

指示灯 Monitor lamp	油压 Oil press.	水温 Water temp.	充电 Charge	预热 Pre-heat
启动之前 (钥匙在“ON”位置) Before starting Key is at (on)	○ 亮 Lighten up	● 灭 Gone out	○ 亮 Lighten up	○ 亮 Lighten up
预热完成 Preheat completion	○ 亮 Lighten up	● 灭 Gone out	○ 亮 Lighten up	● 灭 Gone out
发动机运行 (空载) Engine running But no-load	● 灭 Gone out			
运行 Operating				

〈注意〉要不定期地检查每个指示灯和仪表工作正常与否，机器是否存在漏水、漏燃料和机油现象。

(3) 停机

〈步骤〉

- ① 旋转钥匙开关至“STOP”(停)的位置即可。
- ② 停机后，拔出钥匙，并妥善保管。

(4) 发动机一次未能起动，如何重新启动

- 如果发动机不能按照如上步骤<6.2(1)>起动，立即将钥匙开关放在“OFF”(关)的位置，隔30秒后重新启动，并按照步骤进行。不要让起动电机在不着车时无效运转。如果屡试仍不能起动机器，请参考以下建议。在排除如下故障之后，重新启动。

(Note) Occasionally, check each lamps and meters are working normally, and there is no leakage of water, lube.oil and fuel.

(3) STOPPING THE MACHINE

<procedure>

- ① The engine will stop by turning the key-switch to the 'stop' position.
- ② After stopping the engine pull starting-key out and keep it certainly not to be lost.

(4) HOW TO RE-START WHEN THE ENGINE DOES NOT START BY ONE ATTEMPT

- If the engine does not start with the procedure shown at 6.2(1), set key-switch once to "stop" position and restart after about 30 seconds, following the procedure. Never keep starter motor on running in vain. In case the engine won't start by some trial, following causes may be suggested. Confirm and removing the cause(s) and start again.

- ① 燃料短缺
- ② 燃料开关是否关闭和 / 或燃油滤堵塞
- ③ 电池亏电可能会降低曲轴速度

6.3 自动

- 如果发动机由于燃料短缺而停机，根据如下步骤进行排气

〈步骤〉

- ① 填充燃料
- ② 将钥匙开关放在“起动”位置，并持续 10—20 秒来起动机器。当停留在油泵和油滤之间的空气完全疏通，发动机即可起动。如果通过上述方法仍不能起动，请间隔 15-20 秒再次起动。

6.4 交流电源

(1) 交流电源的使用

- ① 将电路断路器放在“OFF”（关）的位置并连接负载线。
- ② 扳动“断路器”至“ON”（开）的位置，便可供电。
- ③ 为了监视负载情况和特殊需求，可通过“电压调节器”来调整电压。

危 险



- 断路器在“开”时，不要连接负载。
- 不要将机器连接市电和内部线路，这

- ① Fuel shortage
- ② fuel cock is closed and/or fuel filter is clogged.
- ③ battery is discharged, which may result low cranking speed.

6.3 AUTO AIR-VENT SYSTEM

- Should the engine stop by shortage of fuel, vent air according to the following procedure.

<procedure>

- ① Refuel
- ② Crank starter motor by setting starting-key at "START" position and hold it by your finger for about 15 to 20 seconds. When air stayed between the fuel filter and injection pump be vent completely, the engine will start. If the engine does not start after above cranking time, do the same operation again with 15 to 20 seconds interval.

6.4 AC. POWER

(1) HOW TO USE POWER

- ① Set electric circuit breaker to "OFF" and connect load cable.
- ② The electricity will be delivered by switching "ELECTRIC CIRCUIT BREAKER" to "ON".
- ③ Adjust voltage by "VOLTAGE CONTROLLER" observing the condition of load, and as occasion demands.

WARNING



- Never connect load cable when electric circuit breaker is "ON" condition.
- Never connect the machine to the

不仅违反法律，而且会导致电击，火灾和机器损坏。

注意



- 按照规定安装机器地线。
- 连接好机箱和负载外壳。
- 如果安装不正确，断路器不能正常工作。

重要



- 在额定电流之内使用负载。
- 一旦漏电保护开关跳闸，立即停机，并检查负载正常与否，排除故障后，再重新开机。

7. 定期检查及日常保养

7.1 注意以下建议

在该章节中内容是针对正常环境温度而言的，如果机器在恶劣环境中使用请缩短间隔时间。

危险



：悬挂[正在检查]指示牌

- 检查之前，将断路器扳到“OFF”（关）的位置，拔出钥匙，然后在醒目位置悬挂[正在检查]指示牌。检查人员请妥善保管起动钥匙。

commercial source and interior wiring, which is not only against the laws but may cause electric shock, fire and damage the machine.

CAUTION



- Ground machine body-earth as regulated.
- Ground outer box and cover of load, as well.
- Unless grounding is proper, the electric circuit breaker would not work properly.

IMPORTANCE



- Be sure to use load within the limitation of rated current.
- Should the electric leakage breaker be trip, stop the engine at once and confirm whether load is normal or not, and after eliminating trouble(s), start the machine again.

7. REGULAR INSPECTION &ROUTING MAINTENANCE

7.1 TAKE NOTICE OF THE FOLLOWING SUGGESTIONS

The interval shown in this chapter is for the machine used under normal ambient conditions, please shorten the interval if the machine has been used hard under worse conditions.

WARNING



：HANG THE CARD OF [UNDER INSPECTION]

- Before inspection, be sure to set main breaker to "OFF" and pull starting-key off, then hang a card of [UNDER INSPECTION] on an attractive place of

- 拆卸蓄电池负极线。
- 在检查过程中,如果忽略上述注意事项,他人开启机器,会引发严重事故,这不仅会伤害人员,还会损坏机器。

重 要



: 请注意如下条款

- 要使用正确的工具操作,否则会导致意外事故。
- 排放废弃液体,要倒入容器中,不要倒在地上或机器里。
- 有些废弃液体是有害的。不要将其直接倾倒在地面,河流和/或湖泊,这将不仅破坏环境,而且不合法。
- 要使用厂商指定的燃料,机油,润滑脂和冷却液。
- 禁止不按照〈使用说明书〉进行调节和/或拆开发动机和/或发电机。
- 采用原装配件。
- 采用非厂商指定的配件而造成的损坏不在保修范围之内。

the machine. The starting-key should be kept certainly by the inspector.

- Detach (-) side of battery cable.
- Neglecting above cautions and the third person be start the machine during inspection, serious accident may occur, which may not only injure people but damage machine.

IMPORTANCE



: PAY ATTENTION TO THE FOLLOWING POINTS

- Be sure to use proper tools for the purpose, otherwise may happen unexpected trouble.
- For draining wasted fluid, pour into vessel and never spill inside the machine and/or on floor.
- Certain wasted fluid may be harmful. Never dispose such wasted fluid directly on the ground, river and/or pond, etc., which may not only spoil environment but be unlawful. Especially dumping noxious oil, dissolver and filter etc without permission, you may be punished.
- Make sure to use fuel, lube. oil, grease and L.L.C. of manufacturer's recommendation.
- Never adjust and/or break up the engine and/or generator which method or procedure of inspection and/or maintenance is not instructed in this operation manual.
- Use genuine parts.
- Using the parts other than manufacturer's authorization and/or trouble caused by neglecting instruction may be left out

- 避免电气元件上溅水和潮湿

7.2 日常保养及记录

- 在操作之前都应当进行日常保养（请参见第 6 章）

- 在日常检查和操作中,要注意以下几点,一旦存在不正常现象,要弄清原因,消除和/或修理故障。

如果不能找出故障原因或该故障没有在说明书中提及, 请问最近的代理商或经销商。

①操作工具和指示仪表是否完好

②检查机器上是否沾满污秽, 是否漏水, 漏油。

③外观、噪音和温度是否正常

④固定螺栓和螺母是否紧固

⑤查看零配件是否破损, 磨损和遗漏。

⑥每个零件的功能和操作是否正常

- 准备一个记事本对日常检查和保养做记录。知道正常情况对预防故障和早期发现故障非常重要。在日志中记录润滑油的填注时间、检查项目以及操作时间等。

guarantee.

- It is far essential not to spill water and steam on the electrical parts.

7.2 ROUTINE MAINTENANCE IS ESSENTIAL AND RECORD THE RESULTS

- Routine maintenance should be done every time before operation, following to the instruction given in the chapter 6. operation.

- Observe the following points during everyday inspection and operation, and should any abnormal be found, consult its cause, eliminate and/or repair such trouble. In case you cannot find out certain cause of trouble or not stated in this operation manual, ask for the nearest sales shop or agent.

① Operation instruments and indicating meters are good or not.

② Check any dirt stucked on machine or not and leakage of water, fuel, lube. oil.

③ Exterior, noise and generation of heat is normal or not.

④ Fixing bolts & nuts are fastened firmly or not.

⑤ Breaking, wearing and leaving out of components and parts.

⑥ Function and operation of every parts are normal or not.

- Prepare notebook and make it into habit to record everyday routine inspection and maintenance in that diary. Knowing the normal condition is useful to prevent troubles and earlier recognition of trouble. In that diary, record replenish time of

7.3 在开始 50 小时的保养和检查

(1) 机油更换

〈开始 50 小时后和每 200 小时操作的第一次更换〉

注 意



机油的填注和排放

- 每次检查、加注和排放机油时，停机并等待大约 10 到 20 分钟，直到发动机足够冷却。
- 在操作时和刚刚停机后，温度仍然很高，所以有溅出机油的危险，而造成烧伤。

重 要



润滑油的选择

- 润滑油的黏度在很大程度上影响发动机起动、机油耗量、传动件的磨损或温升。确保使用厂商推荐机油。
*规格.....API 类，CD 级
*黏度.....SAE10W-30
- 不要使用两种不同规格的机油，这会降低机油属性

〈步骤〉机油更换量：参见发动机

lube. oil, inspected items etc, together with the operating hour.

7.3 MAINTENANCE AND INSPECTION AT THE FIRST 50 HOURS

(1) EXCHANGE OF LUBE. OIL

<1 ST EXCHANGE IS AFTER 50 HOURS OPERATION AND EVERY 200 HOURS OPERATION HEREAFTER>

CAUTION



DURING REPLENISHING

& DISCHARGING

- Every inspection of amount, replenishing and discharging of lube.oil, stop the engine and wait about 10 to 20 minutes to confirm the engine is cooled enough.
- During operation and just after stopping the engine, it has become high temperature, so it is in danger to spout hot oil and may be burnt.

IMPORTANCE



SELECTION OF LUBE. OIL

- The viscosity of lube. oil may greatly affect to the performance of starting, oil consume, wear of moving part or overheat. Be sure to use the following lube.oil of manufacturer's recommendation.
*Quality class CD of API service classification
*Viscosity SAE10W-30
- Never mix different quality of lube.oil, which may deteriorate the property of lube.oil.

<Procedure> Amount of exchange lube.oil is

①拧开排油口螺钉，并全部放出

②将废油完全排尽并紧固螺栓，然后加注新机油

③机油加注后，等待 15 分钟，然后通过机油尺来确认油位。（参见 6-1（2））

重 要



- 加注机油后，发动机在怠速上运行 5 分钟，然后停机。10 到 20 分钟后，再次检查油位，如有短缺，请加注。

(2)机油滤清器的更换

〈开始运行 50 小时和每运行 400 小时〉

〈步骤〉

- ①使用油滤扳手来拆卸油滤
- ②在油滤垫片上涂少量机油
- ③旋转滤芯，并用油滤扳手紧固油滤（3/4 圈）

7.4 检查和保养（每 100 小时）

(1) 输出端子和内部接线的松动

注 意



- 确认焊接端子和内部接线是否松动，因为会有大电流通过，所以松动会产生热量导致火灾。

referred to engine manual

① Loosen oil drain plug placed outside of the frame-base and pour oil out.

② Drain wasted oil completely and fasten plug firmly, then replenish new oil.

③Wait about 15 minutes till lube.oil is pooled in oil-pan, and confirm oil level by oil level gauge. <refer to 6-1 (2)>

IMPORTANCE



- After exchanging lube.oil, operate the engine for about 5 minutes at idling speed and stop the engine once. Wait 10 to 20 minutes and examine oil level again, and replenish if shorted.

(2) EXCHANGE OF LUBE.OIL FILTER

<1ST EXCHANGE IS AFTER 50 HOURS OPERATION AND EVERY 400 HOURS OPERATION HEREAFTER>

<Procedure>

- ① Remove cartridge type filter by filter-wrench.
- ② Coat engine oil a little on cartridge gasket.
- ③ Screw cartridge into filter, and fasten with filter wrench by 3/4 turn.

7.4 MAINTENANCE AND INSPECTION EVERY 100 HOURS OPERATION

(1) LOOSENING OF INTERIOR WIRING TO OUTPUT TERMINAL

CAUTION



- Confirm the interior wiring to output terminal, which flows large current, and loosening may generate heat and may cause fire.

(2)油路和回油管的固定卡子是否松动

- 紧固卡子，以防漏油，否则可能导致火灾。

(3)空滤的检查和清洗

重 要



- 紧固空滤，否则灰尘或脏物有可能被吸入，加速缸筒和活塞环的磨损。

7.5 检查和保养（每 200 小时）

(1)绝缘电阻的确认

- 为了预防电击和/或漏电，检查绝缘阻抗。

危 险



- 停机后查试绝缘电阻
- 如果机器储存太长时间，和/或有雨水进入时，操作之前，绝缘阻抗必须加以查试和确认。一旦阻抗低于 $1M\Omega$ ，要烘干至电阻恢复到大于 $1M\Omega$

〈步骤〉

①拆掉接在输出端子的负载。

②拆卸 AVR（自动电压调节器）端子

(2) LOOSENING OF FIXING BAND AT FUEL LINE AND FUEL RETURN PIPE

- Fasten such bands to prevent fuel oil to leak, which may cause fire.

(3) INSPECTION AND CLEANING OF AIR FILTER

IMPORTANCE



- Fix air filter firmly, otherwise dust or rubbish may sucked inside and hasten the wear of cylinder liner and/or piston ring

7.5 MAINTENANCE AND INSPECTION EVERY 200 HOURS OPERATION

(1) CONFIRMATION OF INSULATION-RESISTANCE

- To prevent from troubles of electric shock and/or electric leakage, check and confirm insulation-resistance.

WARNING



- Measure insulation-resistance at the machine is stopped condition.
- If the machine is not operated, stocked for a long time and/or rain/water supposed to flood into, insulation-resistance must be measured and confirmed. Should the insulation-resistance be deteriorated under $1M\Omega$, dry generator to regain its resistance more than $1M\Omega$, before operation.

<Procedure>

① Disconnect load cables connected to output terminals.

② Remove connector of AVR.

③检查 3 相交流电线路的绝缘电阻

* 使用 500V 的兆欧表查量交流输出端子与机壳的绝缘电阻，正常值应大于 1MΩ。

(2) 交换机油

- 请参见 7-3 (1)

7.6 检查和保养（每 300 小时）

(1) 蓄电池液体密度检查

危 险



：蓄电池的操作

- 严禁烟火
蓄电池溶液会生成氢气，会造成爆炸危险。确保在通风良好的开敞场所充电。

严禁在电池附近划火柴、制造火花。

严禁使用金属导体短接输出端子来检查蓄电池。应该使用电压表或密度计来检查。

- 不要对冷冻蓄电池充电，以防爆炸。如果电池冻结，请先加热至 16° C 后，再充电。
- 由于蓄电池溶液为稀释硫酸，所以要小心操作，否则可能灼伤。
- 请穿戴保护手套和防护镜，如果电池溶液溅到衣服和皮肤上，立即用大量清水冲洗。如果溅到眼中，立即冲洗，并请

③ Confirm insulation-resistance of 3-phase AC. Wiring.

Measure resistance between AC. output terminal and fixing bolt to bonnet by 500V Mega tester, it is normal when tester shows over 1MΩ.

(2) EXCHANGE OF LUBE. OIL

- Please refer to chapter 7.3(1).

7.6 MAINTENANCE AND INSPECTION EVERY 300 HOURS OPERATION

(1) INSPECTION OF GRAVITY OF BATTERY-LIQUID

WARNING



：HANDLING OF BATTERY-

- Keep strictly 'NO FIRE'
Battery liquid may generate hydrogen gas, which is very much in danger of explosion. Be sure to charge battery under open air with good ventilation.
Never spark, strike match and/or smoke near the battery.
Never check battery by short-circuiting both terminals by metal fragment, etc. Be sure to check by using v- meter or gravity meter.
- Never charge frozen battery to avoid explosion. Should battery be frozen, warm it up to more than 16 °C before charging.
- Handle with care because battery liquid is dilute sulfuric acid, otherwise you may be burnt.
- Wear protective gloves and glasses, if battery liquid is splashed on cloth and/or skin, wash off immediately with large amount of fresh water. Should liquid be

专业医师检查。一旦延误，可能导致失明。

- 请按照国家相关法律和制度处理废旧蓄电池。

注 意



不要反向连接蓄电池导线

- 检查蓄电池极性，确保在充电后，正极线接正端子，负极线接负端子。
通过测量电池液来核实电池充电情况

splashed into eye, wash off immediately with large amount of water and have examined by specialized doctor. Delay of proper treatment may lose your eye- sight.

- In case of disposing battery, follow the certain laws and regulations of your country.

CAUTION



: DON' T CONNECT

CABLE CONTRARIWISE

- For connecting cable to terminal, be sure to connect (+) to (+) and (-) to (-), in case battery have to be charged from other battery and/or after exchanging battery.
- Measure the specific gravity of battery liquid to check charging condition of battery.

（电池状态与电池液密度对应表）

Condition of battery relating to specific gravity)

密度 Specific gravity	状态 Condition	措施 Treatment
>1.28 Over 1.28	密度偏高 Too high gravity	检查电池液量及填充电解液 Check amount of liquid and replenish electrolysis water
1.28---1.25	正常 Good condition	
<1.25 Less than 1.25	不良 No good	立即充电 Charge battery at once

7.7 检查和保养（每 400 小时）

- 更换燃油滤芯（参见 7.3（2））

7.8 检查和保养（每 500 小时）

（1）散热器外部的清扫

7.7 MAINTENANCE AND INSPECTION EVERY 400 HOURS OPERATION

- Exchange fuel oil filter following to the instructions given in chapter 7.3.(2)

7.8 MAINTENANCE AND INSPECTION EVERY 500 HOURS OPERATION

(1) CLEANING OUTSIDE OF RADIATOR

- 不定期的清扫散热器的外部。如果冷却片和管道被灰尘或废物堵塞，这将不利于散热交换并加快冷却水温升。

- 为防止冷却片和管道被破坏，不要用高压清洗。
- 清洗后，充分干燥并检查机器的绝缘阻抗。〈参考 7.5（1）〉

（2）燃油滤组件的替换

- 交换燃油滤组件步骤：

①关闭燃油开关

②拧松螺母并卸下油杯，将滤芯取出

③清洗油杯并放入新滤芯。在螺母上加上新垫片

④用螺母紧固油杯。

⑤打开燃油开关。

（3）燃油箱内部的清洗

- 打开燃油箱底部的排放开关，然后倒入水清洗燃油箱。
- 如果存在任何锈蚀和/或沉淀物，先除去燃料，然后清洗。

危 险



- 在运行中，禁止打开排放开关。

7.9 检查和保养（每 600 小时）

空滤组件的替换

- 替换空滤的步骤

- Clean outside of radiator occasionally even if it is not time, because if fin and tube is stopped up by dust or rubbish, which may give adverse effect to heat-exchange ratio and cause rising of cooling water temperature.

- To prevent fin and tube from injury, don't clean with high pressure cleaning.

- After cleaning, dry completely and check insulation resistance of the machine without fail. (refer to 7.5(1))

(2) EXCHANGE FUEL FILTER ELEMENT

- Exchange fuel filter element by the following procedure.

① Close fuel filter lever.

② Loosen ring-nut and remove cup, and pull filter out.

③ Clean cup and insert new filter in. Fit new packing to ring-nut.

④ Fix cup with new filter firmly to the body by ring-nut.

⑤ Open fuel filter lever.

(3) CLEANING OF INSIDE OF FUEL TANK

- Open drain cock at the lower part of fuel tank and pour water out pooled inside the tank.

- Should any rust and/or sediments be found, dispose fuel and clean inside,

WARNING



- Never open drain cock during operation.

7.9 MAINTENANCE AND INSPECTION EVERY 600 HOURS OPERATION

EXCHANGE OF AIR FILTER ELEMENT

- Exchange element by the following

- ① 打开夹子并拆除空滤罩（灰尘盘）
- ② 拆卸组件并清洗内部
- ③ 装上新的组件并用夹子紧固。（灰尘盘箭头标记朝上）。

7.10 检查和保养（每 1000 小时）

清洗散热器内部

- 拆下散热器盖并打开放水开关。消除内部水锈请使用规定清洁剂。

procedure.

- ① Detach clamp and remove dust pan.
- ② Remove element and clean inside.
- ③ Attach new element and fix firmly to the body by clamp upward the arrow mark on dust pan.

7.10 MAINTENANCE AND INSPECTION EVERY 1,000 HOURS OPERATION

CLEANING OF RADIATOR INSIDE

- Remove radiator cap and loosen coolant drain cock. Use special cleaner for radiator in order to eliminate fur gathered inside.

7.11 日常维护表

△检查和清理 ○替换

项目	每日	开始 50 小时	每 100 小时	每 200 小时	每 300 小时	每 400 小时	每 500 小时	每 600 小时	每 1000 小时
指示灯及仪表	△								
导线连接	△								
输出端子			△						
绝缘阻抗				△					
交流电路断路器				△					
机油，燃料， 冷却水渗漏	△								
蓄电池	△								
蓄电池液					△				
润滑油检查	△								
润滑油更换		○		○					
机滤更换		○				○			
风扇带松紧	△								
冷却水	△								
散热器盖	△								
散热器清洗 (外)							△		
散热器清洗 (内)									△
燃油滤清器排 放	△								
燃油箱排放	△								
燃油管，接头			△						
燃油滤清器组 件更换							○		
燃油箱清洗							△		
空滤的更换			△					○	

〈注意〉发动机的检查与保养请参考附带“发动机手册”

7. 11 ROUTINE MAINTENANCE TABLE

△ Inspection & cleaning ○ Replacement

SERVICE SUBJECT	Dairy	First 50 hr	Every 100hr	Every 200hr	Every 300hr	Every 400hr	Every 500hr	Every 600hr	Every 1000h
Lamps & meters	△								
Ware, wire connection	△								
Output terminals			△						
Resistance				△					
Ac. Circuit breaker				△					
Oil, fuel, water leakage	△								
Battery	△								
Battery liquid					△				
Lube. oil inspection	△								
Lube. oil replacement		○		○					
Oil filter replacement		○				○			
Fan belt tension	△								
Cooling water	△								
Radiator cap	△								
Radiator wash (outside)							△		
Radiator wash (inside)									△
Fuel filter drain	△								
Fuel tank drain	△								
Fuel pipe, joint			△						
Fuel filter element replacement							○		
Fuel tank wash							△		
Air filter replacement			△					○	

<Note> Inspection and maintenance of engine body should be done referring to the instructions given in 'engine manual'.

8. 保养与调节

8.1 安全装置的检查 and 保养

发动机上配有油压开关和水温开关，一旦检测到油压超高和冷却水温偏高，将自动停机。至于其功能查试，请询问最近的经销商和/或代理商。

8.2 蓄电池保养

(1) 电池液

- 检查电池液的余量，如果短缺，应加注蒸馏水至规定量。
- 检查是否存在溶液有渗漏。如果有，请更换电池。

注 意



- 再三强调，蓄电池液非常危险。确保不要溅在衣服和/或身体上。如果溅落，立即用清水冲洗。

(2) 充电

- 将电池从机器上拆下，使用 12V 充电器充电。
- 确保正负端子接线正确，误接会产生严重事故。
- 在充电之前，阅读理解充电器手册，并确认充电器与蓄电池匹配。

8.MAINTENANCE &

REGULATION

8.1 INSPECTION AND MAINTENANCE OF SAFETY DEVICE

Oil pressure switch and water temperature switch are equipped with the engine, which will stop the engine automatically by detecting excessive oil pressure and high water temperature. As for the function test, please ask for the nearest sales-shop and/or agent.

8.2 MAINTENANCE OF BATTERY

(1) BATTERY LIQUID

- Check amount of battery liquid, and should it be shortened, supply distilled water to the regulated amount.
- Check whether there is any breakage and/or leakage of liquid. And if any be found exchange battery.

CAUTION



- As we have noticed repeatedly, the battery liquid is dangerous. Be sure not to be splashed on clothes and/or body. If splashed, wash off immediately with fresh water.

(2) CHARGING

- Disconnect cables between battery and the machine and charge with 12V charger.
- Make sure to connect to the right terminal, (+) & (-), misconnection may cause serious accident.
- Before charging, read and understand the 'manual' of the charger, and confirm that

8.3 故障排除流程表

只要机器使用正确，按时保养，几乎可能预防所有故障。虽然正常使用和保养，但是故障也可能会发生，请按照故障排除流程表和/或发动机手册进行修理。

注 意



- 在检查，调节和替换之前，仔细阅读并理解“发动机手册”。

you are using suitable charger for the battery to be charged.

8.3 TROUBLE SHOOTING CHART

It is possible to prevent almost all of the troubles, as far as the machine be used in the right way and practicing the regular routine maintenance. Should troubles and/or abnormal be happen in spite of normal usage and maintenance, treat and repair properly in accordance with the following trouble-shooting chart and/or guidance shown in the engine manual.

CAUTION



- Peruse and understand 'Engine Manual' as well as this manual, before inspection, adjustment and exchanging be done.

(1) 故障排除（发动机系统）

症状	原因	措施
启动器不工作	延时熔丝烧坏（S B E F） 保险丝烧坏（EF）	检查，替换 检查，替换
启动器低速运转 启动器正常，发动机不启动	电池放电 燃料开关关闭 燃料短缺 燃料不正确 燃滤组件堵塞 燃油泵不良 停止电磁阀不良	检查密度，充电 打开开关 添加燃料 使用 BS2869: 1967A1 或 A2 级 更换组件 检查，更换 检查，更换
指示灯不亮	电池无电 延时熔丝烧坏（S B E F） 保险丝烧坏（EF） 导线接触不良	检查密度，充电 检查，替换 检查，替换 检查，修理
油压指示灯一直亮	机油不良 机油压力开关不良 导线接触不良	重新添加 检查，替换 检查，修理
水温指示灯一直亮	散热器堵塞 缺少冷却空气 水温开关不良 导线接触不良 缺少冷却液	清理 调节风扇皮带 检查，替换 检查，修理 添加
充电指示灯一直亮	发电机不良 导线接触不良	检查，替换 检查，修理
发动机不能提速	油路组件堵塞 空滤堵塞 发动机控制单元不良 导线接触不良（发动机控制单元）	替换组件 清洗组件 检查替换 检查，修理，替换

(1) TROUBLE-SHOOTING (ENGINE SYSTEM)

SYMPTOM	CAUSE	TREATMENT
Starter doesn't work.	<ul style="list-style-type: none"> * Breaking of fusiblelink (FBL) * Breaking of Fuse (EF) 	Inspect, Replace inspect, Replace
② Starter is low speeded Starter is OK, but engine doesn't start	<ul style="list-style-type: none"> * Battery is discharged * Fuel cock is closed * Fuel shortage * Fuel improper * Fuel element is clogged * Electromagnetic pump defect * Stop solenoid defect 	Inspect gravity, Charge Open cock Refuel Change to BS2869:1967 class A1 or A2 Replace element Inspect, Replace Inspect, Replace
③ Monitor lamp doesn't light	<ul style="list-style-type: none"> * Battery is discharged * Breaking of fusiblelink * Breaking of Fuse (EF) * Bad wire, connection 	Inspect gravity, Charge inspect, Replace inspect, Replace Inspect, Fix
④ Monitor lamp [OIL PRESSURE] keeps lighting	<ul style="list-style-type: none"> * Oil defect * Oil press. Switch defect * Bad wire, connection 	Replenish Inspect, Replace Inspect, Fix
⑤ Monitor lamp [WATER TEMPERATURE] keeps on lighting	<ul style="list-style-type: none"> * Radiator is clogged * Cooling air shortage * Water temp. Switch defect * Bad wire, connection * Coolant shortage 	Clean Adjust fan belt Inspect, Replace Inspect, Fix Replenish
⑥ Monitor lamp [CHARGING] keeps on lighting	<ul style="list-style-type: none"> * Alternator defect * Bad wire, connection 	Inspect, Replace Inspect, Fix
⑦ Engine speed doesn't become high	<ul style="list-style-type: none"> * Filter element is clogged * Air filter is clogged * Engine control unit defect * Bad wire, connection (Engine control unit) 	Replace element Clean element Inspect, Replace Inspect, Fix, Replace

(2) 故障排除（发电机部分）

症状	原因	措施
不能发电	电压表不良 AVR 熔丝烧断或不良	检查，替换 检查，替换
无交流电	断路器在”OFF ”（关）的位置	扳到”ON”（“开”）
电压控制器不工作	AVR 不良 电压控制器不良	检查，替换 检查，替换
发动机高速运转（飞车）	发电机导线短路	修理
振动严重	发动机安装不良	检查，修理
噪音过大	螺栓松动或缺少螺栓	检查，紧固
蓄电池放电	钥匙在“开”的位置 电池不良	检查 充电，替换

(2) TROUBLE-SHOOTING (GENERATOR SYSTEM)

SYMPTOM	CAUSE	TREATMENT
① No electricity generated	* Volt-meter defect * AVR fuse snapped, defect	Inspect, Replace Inspect, Replace
② No AC. power	* Breaker (option) is [OFF]	Set to [ON]
③ Voltage controller doesn't work	* AVR defect * Voltage controller defect	inspect, Replace Inspect, Replace
④ Engine keeps high speed	* Generator lead is short circuited	Repair
⑤ Excessive vibration	* Bad engine installation	Inspect, Repair
⑥ Excessive noise	* Bolt loosened or lack	Inspect, Tighten
⑦ Battery become discharged.	* Key is left at [on] * Battery defect	Check Charge, Replace

9. 长期保存方法

9.1 日常保存

- 确保机器水平放置，远离潮湿、盐分、沙土和/或灰尘。

9.2 长期保存

(1) 确保机器放置在干燥与清洁的地方，远离灰尘和垃圾。如果机器存放在室外，应当建造一个临时小屋，将其放入。不要放在室外，然后直接覆盖。这种存储方法会导致机器生锈。

(2) 排尽机油，然后换上新机油。对发动机稍作运转后，将机油完全排尽。

(3) 在转动的零件上涂上润滑脂，比如在连杆上

(4) 将蓄电池充满，拆下地线，然后放在干燥场所。

*每月充电一次，防止电池老化。

(5) 倒入冷却水，将燃料排尽。

(6) 为防止潮湿、灰尘和废物的侵入，用塑料布或胶带将发动机进气口和消声器口塞紧。

(7) 在存放之前，检查机器运行情况。如果发现有任何故障，应当进行调节和修复，以便下次使用。

9.INSTRUCTION FOR LONG TIME STORAGE

9.1 DAILY STORAGE

- Be sure to keep the machine horizontally, where free from humid, salt, sand and/or dust.

9.2 FOR LONG TIME STORAGE

(1) Be sure to store the machine(s) in dry and clean place free from dust and rubbish. In case the machine(s) be kept outdoors, built temporary hut and store inside. Don't leave outdoors just covering all the machines directly, such storage may cause rusting of the machine(s).

(2) Dispose lube.oil in oil pan, and supply new oil a little for cleaning inside of the oil pan. After running engine for a while, then dispose oil completely.

(3) Grease lube. oil to the moving parts, such as rod, etc.

(4) Do charge battery to the full and detach earth-cable, and keep them at dry place.

*Be sure to charge battery once in a month to prevent deterioration.

(5) Pour cooling water and fuel out completely.

(6) Shut engine air inlet and mouth of muffler tightly by vinyl or packing tape, in order to humid, dust and/or rubbish may not get in.

(7) Before storage check the performance and if any abnormal be found, adjust and/or repair for the next operation.

(8)每三个月至少按照规定保养(运行)发动机一次,以确认机器状态良好。

9.3 机器的叠放

为节省存储空间,机器可以叠放。安全起见,叠放过程中,要严格遵守以下条款。否则可能引起跌落和倒塌,非常危险。

注 意



- 将机器放在水平和结实的地板和/或地面上。
- 不要将更重的机器放在另一台机器上。
- 在机器之间插入方木。
- 底部机器要均匀分担上方机器重量。要轻抬轻放。
- 不允许放叠放三台。

(8) Do trial operation at least once in 3 month to confirm condition of the machine.

9.3 STORING MACHINE PUTTING UPON ANOTHER

This machine is designed to be putted upon another to save storage space. For safety, be sure to obey following points to put machine upon another. Otherwise may cause dropping and collapsing, which is very dangerous.

CAUTION



- Place the machine(s) on flat and firm floor and/or ground.
- Don't put heavier machine than based machine on it.
- Insert square timber between the machines.
- Be sure the based machine(s) is sharing equal weight of the machine(s) putted on. And don't put with a thud.
- Never put three times.