LIGHTING TOWER
GLT1000
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1. Introduction

Thank you for purchasing our newly developed lighting tower.

The Operator’s Manual is designed to guide you through the correct procedures needed to operate and maintain your new “SUNIGHT” lighting tower.

This manual “safety precautions” must be read and understood prior to operating this machine and it must be kept with the lighting tower at all times for later reference.

Operating this machine must follow this manual's instructions and some other related safety regulations. The user-friendly design of this lighting tower can guarantee your safety in loading, unloading, operation, and maintenance if all the steps are carried out in compliance with this manual.

We reserve the right to improve this lighting tower. If there is any technical improvement without change in its structure and function, this manual will not be modified.

The lighting tower can only work within the operating range specified herein. Any use out of this range is prohibited and any consequence result from this use is the user’s responsibility.

Operation is forbidden, if:

The user has replaced its spare parts randomly.
The safety device is incomplete or ineffective.
The operator’s manual is not fully understood.

References are made in this manual that explains relevant information using a clock reference. In these instances the drawbar is considered to be at the 12 o’clock position. Also the ‘left’ is considered to be at the 9 o’clock position and ‘right’ is considered to be the 3 o’clock position. When using the term ‘front’ it refers to the 12 o’clock position and ‘back’ refers to the 6 o’clock position.

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2. Safe operation

Careful operation is your best assurance against an accident. Read and understand this section carefully before operating the lighting tower, all operators, no matter how much experience they may have, should read this and other related manuals before operating the lighting tower. It is the owner’s obligation to provide all operators with this information and instruct them on safe operation.

Safety instructions

Be sure to observe the following safety operations.

Read and understand carefully this “OPERATOR’S MANUAL” and “LABELS ON THE LIGHTING TOWER” before operating the lighting tower.

Learn how to operate and work safely. Know your machine and its limitations. Always keep the machine regularly serviced as per manuals service instructions.

DO NOT modify the machine. UNAUTHORIZED MODIFICATIONS to the machine may affect the function and life span of this machine, if the machine does not perform properly, consult your local Lighting Tower Distributor first.

Carefully read the all safety symbols attached to the lighting tower and observe all messages that follow the symbols to avoid possible injury or death.

**DANGER** Indicates a hazardous situation which, if not avoided can result in serious injury or even death.

**WARNING** Indicates a hazardous situation which, if not avoided, could result in serious injury or even death.

**CAUTION** Indicates a hazardous situation which, if not avoided, could result in minor or major injury.

**!** Indicates potential personal injury hazards.
NOTE

Gives helpful information.

Precautions against electrical shock

- This lighting tower has provision for producing high voltage electricity (up to 220 volts) that can produce a fatal shock to a person who accidentally places himself in the electrical circuit.
- Beware of a cut or damaged power cord and replace it immediately.
- Shut down the machine when repair and carrying out maintenance.
- Troubleshooting and maintenance as regards high voltage AC system must be carried out by a Qualified and Registered electrician.
- Disconnect electrical power and turn off engine before removing protective electrician covers on high voltage enclosures.
- Only use a multimeter (or voltage meter) with two well-insulated probes rated for 750 volts.
- Keep one hand in your pocket when touching the multimeter probe to hot conductor. This will prevent electricity from passing into one hand and out the other, a path that takes the electricity across the heart. Always disconnect power from the circuit being measured before connecting test leads to high voltage points.
- Inspect the ground cable between the generator set and the frame. If damaged, replace immediately.
- Use tools with insulated handles when working within the reach of live conductors, and remove any metal jewelries such as watchbands or bracelets that might make an inadvertent electrical contact.
- Concentrate on the task until the danger from high voltage is removed.

Wear personal protective equipment (PPE)
• DO NOT wear loose, torn or bulky clothing around the machine that may catch on canopy doors, stabilizer legs, and drawbar causing injury.

• Use additional safety items-PPE, e.g. hardhat, safety protection, safety goggles, gloves, etc., as appropriate or required.

• DO NOT operate the machine under the influence of alcohol, medication, or other drugs, or while fatigued.

• DO NOT wear radio or music headphones while operating the machine.

Safe handling of fuel and lubricants-keep away from fire

• Fuel and lubricants are as flammable materials, keep away from fire.

• To ensure your safety , please stop the engine before refueling and/or lubricating.

• DO NOT smoke or allow flames or sparks in your working area. Fuel is extremely flammable and explosive under certain conditions.

• Refuel at a well-ventilated and open place after the engine cool down.

• DO NOT mix gasoline or alcohol with diesel fuel. The mixture can cause fire or severe engine damage.

• Strictly prohibit to start the machine in the circumstances lack of fuel, lubricants.

• DO NOT use poor or unclean fuel and lubricants.

• DO NOT use unapproved container. ONLY use approved storage containers.

Cautions against burns & battery explosion

• Be cautious of hot components, e.g. muffler, muffler cover, radiator, hoses, engine body etc. During operation and after the engine has been shut off. do not touch the turbo within one hour after the engine has been turned off,.

• DO NOT remove the radiator cap while the engine is running or immediately after stopping, otherwise hot water will spout out from the radiator. Wait until the radiator is completely cool before removing the cap. Wear safety goggles.

• Lead acid batteries can be dangerous. The sulfuric acid in the battery can cause severe skin and burns to the eyes. The hydrogen gas emitted during charging can
explosion if an arc or flame is present near the battery. Use precautions to prevent acid burns or explosive conditions.

- The battery presents an explosive hazard. When the battery is being charged, hydrogen and oxygen gases are extremely explosive. Keep sparks and open flames away from the battery, especially during charging, charge in ventilated area.
- If acid does get on skin or in eyes, immediately flush under running water, and then obtain medical help as soon as possible

**Safety precautions against operation**

- Please read the operate manual before operating the lighting tower.
- In accordance with the guidance of instructions to operate the lighting tower.
- Under no circumstances that the lighting tower be moved in any way before the mast is retracting, as it is extremely unsafe.
- Always ensure that only qualified people operate the lighting tower.
- Make sure earth spike is connected to an earth spike via the earth point at the front of the plant.
- Always dispose of any rags used to clean up fuel or oil in appropriate bins.
- Stay clear of any moving parts of the lighting tower.
- DO NOT remove or disconnect any of the safety devices.
- Only one operator at a time to operate the lighting tower.
- Always make sure that the stabiliser legs are secured and the machine is level and stable before operation.
- Ensure that all appropriate measures are taken with the legs to avoid a trip hazard.
- Never start the lighting tower when it is short of fuel or lubricants.
- Running with overload is forbidden.
## 3. Technical specification

<table>
<thead>
<tr>
<th>Standard equipment</th>
<th>4VA4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (mm)</td>
<td>2330 (1260, Dismantling the tow bar)</td>
</tr>
<tr>
<td>Width (mm)</td>
<td>1130</td>
</tr>
<tr>
<td>Height (mm)</td>
<td>2450 (2250, Dismantling the lights)</td>
</tr>
<tr>
<td>Mast height(fully extend,m)</td>
<td>7</td>
</tr>
<tr>
<td>Weight (Kg)</td>
<td>550</td>
</tr>
<tr>
<td>Engine model</td>
<td>L100N (Yanmar)</td>
</tr>
<tr>
<td>Frequency (HZ)</td>
<td>50</td>
</tr>
<tr>
<td>Speed (rpm)</td>
<td>3000</td>
</tr>
<tr>
<td>Continued power (KVA)</td>
<td>4.4</td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>1</td>
</tr>
<tr>
<td>Diesel engine characters</td>
<td>4 Cycle, In line, Air-cooled diesel</td>
</tr>
<tr>
<td>Combustion type</td>
<td>Direct injection</td>
</tr>
<tr>
<td>Engine aspiration</td>
<td>Nature</td>
</tr>
<tr>
<td>Emission level</td>
<td>N.A.</td>
</tr>
<tr>
<td>Alternator insulation</td>
<td>H class</td>
</tr>
<tr>
<td>Rating voltage (V)</td>
<td>230</td>
</tr>
<tr>
<td>Fuel tank capacity</td>
<td>38 liters (10US Gallons)</td>
</tr>
<tr>
<td>Fuel tank operating hours</td>
<td>32 hours</td>
</tr>
<tr>
<td>Type of light</td>
<td>Metal halide floodlight</td>
</tr>
<tr>
<td>Number &amp; power of light</td>
<td>4*1000</td>
</tr>
<tr>
<td>Number of mast sections</td>
<td>5</td>
</tr>
<tr>
<td>Mast extension</td>
<td>Manual operation</td>
</tr>
<tr>
<td>Light tilt</td>
<td>Manual operation</td>
</tr>
<tr>
<td>Stabilizer legs</td>
<td>Manual operation</td>
</tr>
<tr>
<td>Trailer Suspension system</td>
<td>Hexagon rubber axis</td>
</tr>
<tr>
<td>Hitch</td>
<td>Ball or O ring</td>
</tr>
<tr>
<td>Specification</td>
<td>Details</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>Tire rim size</td>
<td>13”</td>
</tr>
<tr>
<td>Output sockets</td>
<td>1 PCS (230V, 10A)</td>
</tr>
<tr>
<td>Input sockets &amp; MTS</td>
<td>1set (230V, 16A)</td>
</tr>
<tr>
<td>Acoustic pressure</td>
<td>78dB(A) at 7meters away</td>
</tr>
<tr>
<td>Max load quantity in a 20’ container (sets)</td>
<td>10</td>
</tr>
</tbody>
</table>
4. Brief introduction of the Lighting Tower

Lighting tower is a lighting device with the components of genset, light, mast, trailer and canopy. It is designed for working outside against strong wind and is rainproof. The trailer allows it to be drawn by different kinds of vehicle. Its flexibility and reliability makes it ideal for the use of night construction, emergency handling, rescuing etc. With its mast galvanized and the canopy processed, it is rainproof and can work in all weather condition. “VA” series is the latest design and manufacture lighting tower with the vertical telescopic mast. The operation is simpler than other series lighting tower. And the smaller size make the transportation become more convenient. The “VA” series includes Manual type, Electrical type, Hydraulic type and Solar type.

The features of Manual type “4VA4000”:

1. 5-section telescopic mast can be extended by manual operation.
2. The light bar can be extended to 7meters altitude fully, and its illuminating angle can be manually adjusted at lowest position easily.
3. The trunk with air-springs is easy for maintenance.
4. The electrical devices of the lights are fitted in the trunk, and easy to fix. The most cable can be rtracted in the protective stainless steel tube.
5. The mast and the powder coated canopy can work for a long time in outdoor environment.
6. The AL-KO Hexagon rubber suspension system is suitable for variously rough road, and its maintenance-free axis's service life will be at least 20 years.
7. Three manual legs of individual operation are able to support stably and reliably and reliably even on rough ground, so the lighting tower can also work in the 8 grade wind's weather.
8. The lights are IP65 or IP66 protective class.
9. The smaller size is easy to load. The maximum would be 10 sets in a 20-feet container.
5. Structure of the lighting tower

5.1 External construction

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>drawbar</td>
<td>2</td>
<td>The handle</td>
</tr>
<tr>
<td>3</td>
<td>Protection pipe</td>
<td>4</td>
<td>Telescopic mast</td>
</tr>
<tr>
<td>5</td>
<td>Floodlights</td>
<td>6</td>
<td>Door engine inspection</td>
</tr>
<tr>
<td>7</td>
<td>Command panel</td>
<td>8</td>
<td>External electrical panel</td>
</tr>
<tr>
<td>9</td>
<td>Plate for transport through forklift</td>
<td>10</td>
<td>Stabilizer legs</td>
</tr>
</tbody>
</table>

![Diagram of lighting tower with labeled parts]
5.2 External electrical panel

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Battery switch</td>
<td>12</td>
<td>Main input</td>
</tr>
<tr>
<td>13</td>
<td>Spare output</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Put the battery switch to "off" position when the lighting tower stop working.
- Spare output socket for other auxiliary equipment and electricity power tools.
- The main input or other generators can power the lighting tower through the input socket, so that will get more benefit on the fuel consumption and noise pollution.
- Please choose suitable cables when inputting and outputting voltage.

**WARNING:**

Input and output currents are high-voltage during operation, please be careful.
5.3 Command panel

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Frequency meter</td>
<td>15</td>
<td>Low oil pressure lamp</td>
</tr>
<tr>
<td>16</td>
<td>Hour meter</td>
<td>17</td>
<td>Mains &amp; genset transfer switch</td>
</tr>
<tr>
<td>18</td>
<td>Starter switch</td>
<td>19</td>
<td>Mains circuit breaker</td>
</tr>
<tr>
<td>20</td>
<td>Circuit breaker for lamps switch</td>
<td>21</td>
<td>Genset circuit breaker</td>
</tr>
</tbody>
</table>

5.4 Battery

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>
- The machine is supplied with the battery not connected.
- Please pay attention to the correct polarity when connecting the battery with cables.
- If the machine has to be stopped for a long period, we suggest to disconnect the battery.

**WARNING:**
The battery fluid contains sulphuric acid which is extremely corrosive and harmful to the skin. Always wear protective gloves and be extremely careful.

5.5 Fuel tank

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Fuel tank cap</td>
<td>24</td>
<td>Fuel contents gauge</td>
</tr>
</tbody>
</table>

- The operation of refueling must be done according to the instruction of fuel contents gauge.
- Turn off the engine before any operation of refueling and be care of fire.
- DO NOT let fuel spill or leak.
- No fuel and lubrication in the engine of the lighting tower as purchased.
- Please protect the environment and dispose the waste oil properly.

**CAUTION:**
Contact with engine oil can damage your skin, put on gloves when using engine oil.

If you come in contact with engine oil, wash it off immediately.

5.6 Others

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>pressure-reducing handle</td>
<td>26</td>
<td>starting handle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Fuel valve</td>
<td>28</td>
<td>speed governing handle</td>
</tr>
</tbody>
</table>
Check the engine oil level before starting or after stopping the machine for at least five minutes.

Please properly dispose the waste oil and protect the environment.

<table>
<thead>
<tr>
<th>Items</th>
<th>Description</th>
<th>Items</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>locking-pins</td>
<td>31</td>
<td>Under rectangular tube</td>
</tr>
<tr>
<td>32</td>
<td>Upper rectangular tube</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pils understand the structure of the lighting tower and it will be of great help in correctly operating the machine.
6. Transportation

6.1 Operations before loading the lighting tower

In order to make each standard container can hold more lighting towers, we need to remove some parts before loading. Ensure the lighting tower is off, steadily and the telescopic mast is full retracted before removing its parts.

Specific steps are as follows:

(1) Take out the bolt (Fig.1) and plug (Fig.2) on the support of the floodlight, and then take the floodlights down.

(Fig.1)  (Fig.2)

![Floodlights are fragile and must be handled with great care.](image)

(2) Remove the bolts (Fig.3) with spanner which fixes the triangular metal bracket and the handle of the lighting tower. Then take down the triangular metal bracket and the handle.
NOTE: After take down the triangular metal bracket and the handle, please keep the bolts careful in case for later use.

(3) Anti-Clockwise rotate the back stabilizer legs and let it retract.

Release the locking-pins from their hole, and then put the left stabilizer leg insert the right under rectangular tube as well as put the right stabilizer leg insert the left upper rectangular tube. (Fig.4 and Fig.5 present the lighting tower which are completely assembled).

Handled as the above, spare parts and components can be removed and loaded in a container, this innovative design feature allows more available space to be used, cutting down on transportation costs. The Max. load quantity in a 20’ container is 10 sets.
6.2 Operations after unloading the lighting tower

Please follow the following steps to install the lighting tower:

(1) Open the standard container, take out the lighting tower and its parts.

(2) Install the triangular metal bracket and the handle of the lighting tower.

(3) Release the locking-pins from their hole, and then put the right leg insert the left under rectangular tube as well as put the left leg insert the right upper rectangular tube.

   Check that the pins go into the respective seats of blocking of the rectangular tube.

(4) Fix the floodlights on the support of the floodlight.

As mentioned above, tow it with towing vehicle after the parts installed. (The towing operation as described at the chapter “7.1 Lighting Tower’s Travel”}


7. Preparation before operating the lighting tower

7.1 Lighting Tower’s Travel

NOTE:

- When the lighting tower is traveling, the genset must be off, all the stabilizer legs and telescopic mast have to be retracted, all the parts that can move have to be fixed or locked(Fig.1).
- Please lay the stabilizer legs horizontally before traction (Fig.2). In order to prevent the rear two stabilizer legs touch the ground and affect the traction tractor.
- The tyres are to be inflated to the correct pressures.

(Fig.1) (Fig.2)

1. Traveled to the work site which is a relatively flat place, and then extend all stabilizer legs to just touching the grounds.

2. Adjusted the stabilizer legs, and make sure the trailer is in horizontal position.

3. Never run the engine in a closed building or confined area and keep good ventilation to evacuate exhaust gas.

7.2 Connecting the battery

The machine is supplied with the battery not connected.

Pay attention to the correct polarity when connecting the battery with cable.

7.3 The operation of grounding
The grounding (Fig. 3) has connected with the conductor (Fig. 4) of the lighting tower, so lay the legs to touch the ground.

Grounding step: Rotate the handle clockwise, and lay the stabilizer legs to touch the ground.

![Grounding connection](image.png) ![Stabilizer legs](image2.png)

(Fig. 3) (Fig. 4)

**WARNING:**

Please check the grounding (Fig. 3) and lay the stabilizer legs touch the ground before operating.

**7.4 Pre-Start Checklist**

- Read the manual carefully before operating the lighting tower;
- Ensure the lighting tower is in a horizontal position;
- Check the fuel, engine oil is enough to work and verify the relative levels;

**Note: No fuel and lubrication in the engine of the lighting tower as purchased.**

- Walk around the machine and look for any obvious damage to the body itself, the lights, the tyres and the tie down points.
- Check the wire ropes and ensure they are intact.
- Check that all appropriate stickers are legible.
- Check the grounding.
- Check the switch on the Command Panel and ensure that they are intact.
- Check that the circuit breakers (19, 20, 21) placed on the frontal board are in “OFF” position.

**8. Operating instructions**
WARNING:
Do not raise the lighting tower in the vicinity of overhead power lines.

NOTE: Please perform the preparatory work carefully before starting the engine.

8.1 Starting the engine

WARNING:
- Engine exhaust fumes can be very harmful if allowed to accumulate. Be sure to run the engine in a well ventilated location where there are no people or livestock near the engine.
- Be sure there is no tools left in the body in the debris before starting diesel engine.
- If you turn off the engine under loading condition emergently, the temperature of generator will increase, this will shorten the life span of the engine.

DANGER:
- Do not touch muffler or exhaust pipes while they are hot. Sever burns could happen. Always stop the engine and cool it before conducting inspections, maintenance, or for a cleaning procedure.
- Avoid hands, body, clothes, etc. to close the air filter when the machine is running.

NOTE: Use the speed governing handle(28) to control the speed of diesel generator.

There are two ways to start the engine:

Electric Operation:
(1) Open the cover of the lighting tower, and open the “fuel valve”(27).

(2) Turn the speed governing handle (28) to the “RUN” position.

(3) Close the cover of the lighting tower.

(4) Open the command panel.

(5) With the key to open the battery switch(11), and then rotate the electric start switch(18) to “START” position by clockwise rotation and the engine should start.

Release the key immediately when the engine starts.

(6) Pull the genset circuit breaker(21) to “ON”position, and then pull the Mains and genset switch(17 ) to “GENSET” position.

**Manual Operation:**

(1) Turn on the “fuel valve”(27).

(2) Pull the engine speed switch (28) to the “RUN” position.

(3) hold the starting handle(26).

A. Pull the starting handle(26), put it back slowly when feeling the pressure.

B. Pull the pressure-reducing handle(25) with hand until it goes to no compressing position, it will self-return after the engine started.

C. Start: hold the starting handle(26) and pull slowly, drive the rope quickly when the starting handle hooking a driving wheel.

D. In cold weather, you should remove the bolt on the cylinder head cover before starting and inject 2ml oil if the engine has trouble starting.

**NOTE:**

- If the engine does not catch or start at 10 seconds after the switch is set at “STARTING”, wait for another 15 seconds and then begin the engine stating sequence again.

- Do not allow the starter motor to run continuously for more than 20 seconds.

**Technical specification:** The first 20 hours of the new engine is run-in period. This period of time cannot be full-load operation. The operation must be
under the speed of 3600 (60HZ) r/min or 3000 (50HZ) r/min and no more than 70% of the highest power. This can guarantee the normal operation of the engine.

For the details of engine’s operation, pls refer to the engine specification

8.2 Engine Alarms

Low oil pressure
If the module detects that the engine oil pressure has fallen below the low oil pressure switch after the safety on time has expired, the low oil pressure light(15) will be light. So check oil pressure of the lighting tower.

Hours meter
This table(16) will show the battery voltage, and be convenient to check the voltage. Also, it shows the running hourage of the engine and convenient to maintenance and repairment.

8.3 Remarks

■ Always ensure that only qualified people operate the lighting tower. UNAUTHORIZED MODIFICATIONS to the machine may impair the function or safety and affect machine life.

■ The professionals must not permit anybody to stay near to the lighting tower, when it is in function.

■ When the lighting tower needs to work on the slope(less than 15° ), please use anti-skid blocking two wheels to avoid the lighting tower moving.

■ Always make sure that the stabiliser legs are secured and the lighting tower is level and stable before operation, moving parts must not be around the lighting tower

■ Always wear protective gloves, clothes and other protective equipments, as required.
NOTE: Manufacture will not bear any responsibility of the damage to persons and products due to violation of safety regulations.

8.4 Use of the lighting tower

(1) Release the locking-pins from their holes (Fig.1) and then proceed manually to the extraction of stabilizer legs until the pins lock the exit of the tubular. Check that the locking-pin go into the respective seats of blocking of the tubular.

(Fig. 1)

(2) Rotate the stabilizer handle clockwise until the stabilizer legs touches the ground, then raise the other stabilizer legs to level trailer (Fig.2).

(Fig.2)

(3) When the mast is in the lowest position, tilt and rotate the floodlights.

Tilt the floodlights: unscrew the nut with Hexagon wrench and adjust the angle of the floodlight (Fig.3).
Rotate the floodlights: loosen the wing bolt and rotate the floodlight to the position you prefer (Fig.4).

(Fig. 3)  (Fig. 4)

(4) Rotation the handle clockwise that allows you to raise and lower the telescopic mast (Fig.5).

(Fig. 5)

**WARNING:**
- Do not extend the mast until the trailer has been adjusted to the Horizontal Position and the stabilizer legs have been extended and are supported completely.
- Prohibid to retract the stabilizer legs until the mast is fully retracted.

(5) Starting the engine. Before starting the engine, make reference to the chapter "8.1 Starting the engine".

(6) Turn on the floodlights
Turn the circuit breakers(20) “ON”, light the first lamp and allow 10 seconds for it to warm up, then light the next lamps.

⚠️ It is necessary to wait the cooling of the lamp (about 10 minutes) before relighting.

⚠️ WARNING :
The lighting tower is pre-arranged to with stand 74km/h wind at the maximum height, be careful and lower timely the telescopic mast in gale weather.

NOTE: Relocating the lighting tower to new location, please make reference to the chapter “7.1 lighting tower's travel”.
9. Lighting Tower Storage

If the lighting tower is not used for a long time, measures have to be taken for good storage to prevent corrosion or any damage.

9.1 Fuel tank sealing

(1) Drain the fuel completely and wash the inner tank with gasoline.

(2) Dry-type sealing: Put 100g deoxidant or 20g antirust in the tank cock and then tighten the cock.

(3) Wet-type sealing: Fill the tank with clean diesel to 95% of the specified capacity and then tighten the cock.

9.2 Engine sealing

(1) Keep the engine running at low speed for five minutes;

(2) Before sealing it, run the genset for 30 minutes with the floodlight on until the coolant and the lubricant oil to reach appropriate temperature then drain them completely.

(3) Remove the fuel drain plug of the cylinder, add about 2ml lubricants.

(4) Press the decompression handle, do not let go, pull the starter hander 2-3 times (do not start the engine).

(5) Seal the air filter with plastic tape.

(6) Seal the muffler outlet with rubber sleeve or plastic sleeve.

(7) Remove any oil or dust sticking to the machine completely, put the lighting tower in a safe and dry place.

9.3 Battery sealing

(1) Disconnect the battery.

(2) Clean the battery connections, coat a thin layer of Vaseline on the joint, and pack them with plastic film.

(3) Take out the battery and put it in a safe and dry place.

9.4 Floodlights sealing

Demount the floodlights and put them in cartons. The cartons should be placed at a dry
and clean storage room free from rain and dust.

9.5 Wheel sealing

(1) Suspend the wheel

Use steel or wooden support frame to support the wheel axle and suspend the wheels to let them above the ground 3-5cm. Put the chock under the wheels.

(2) Seal the wheel

Coat the wheel tread with paraffin or cover the wheel with craft paper, newspaper or canvas. Coat JXF rubber antioxidant is used to slow the oxidation of the wheel.

9.6 Lighting tower sealing

After the above components are sealed, cover the lighting tower with canvas.
10. Lighting Tower Unsealing

The unsealing of lighting tower:

1. Remove all the covers and seals.
2. Remove the support frame to let the wheel land.
3. Extend all the stabiliser legs to support the lighting tower and make sure it is level.
4. Connect the battery to the Genset make sure the battery voltage is enough to start the motor.
5. Add quality lubricants.
6. Add quality diesel.
7. Start the Generator to see if it works well. Prior to operating, please ensure the Genset is in perfect running condition.
8. When the Genset is running and all electric outputs are normal, the lights may turn on.
9. Before operating the lighting tower, please do pre-start checklist (7.4 pre-start checklist).
11. Maintenance of the Lighting Tower

11.1 Maintenance of the Generator

**WARNING:**

- Shut down the machine when carrying out maintenance.
- Whenever open the control panel, the necessary protective measures must be taken to prevent electric shock accident.
- Only qualified person is permitted to do the repair work and ONLY use the spare parts approved by manufacture.

**Regular Maintenance**

Servicing and maintaining the Genset is important to its lifespan, follow the maintenance items in the chapter. The symbol “○” means you need experienced professionals to do the work, and you can ask CHANGCHAI dealer to check and repair.

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TIME</th>
<th>Daily</th>
<th>20 hours</th>
<th>50 hours</th>
<th>100 hours</th>
<th>200 hours</th>
<th>500 hours</th>
<th>1000 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check bolts and nuts</td>
<td>Daily</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Check and add oil</td>
<td>Daily</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change the engine oil</td>
<td>Daily</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clean the oil filter</td>
<td>Daily</td>
<td>✓</td>
<td>✓</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oil Leakage check</td>
<td>Daily</td>
<td>✓</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Change the</td>
<td>Daily</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>Task</td>
<td>First Time</td>
<td>Clean</td>
<td>Change</td>
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<td>------------------------------------------</td>
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<tr>
<td>Air Filter</td>
<td>✔</td>
<td></td>
<td>✔</td>
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<td></td>
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</tr>
<tr>
<td>Clean and change the fuel filter</td>
<td>✔ first time</td>
<td>✔ clean</td>
<td>✔ change</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check the fuel spray nozzle</td>
<td></td>
<td></td>
<td>○</td>
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<td></td>
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<tr>
<td>Check the injection pump</td>
<td></td>
<td></td>
<td>○</td>
<td></td>
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<td></td>
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<tr>
<td>Valve clearance adjustment</td>
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<td></td>
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<td></td>
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<tr>
<td>Check the valve clearance</td>
<td></td>
<td></td>
<td>○</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Check the piston ring</td>
<td></td>
<td></td>
<td>○</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Check the battery electrolyte</td>
<td>Inspected once a month, if necessary, add distilled water.</td>
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<td></td>
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</tr>
</tbody>
</table>

**NOTE:** For more information please refer to the Genset's manual

**Oil change**

Don’t ask your motor oil to do more than its should. Old oil takes the life out of the engine faster than almost anything else. Use your owner’s manual to determine the time for an oil change and grade of oil to be used.
WARNING

- Be sure to stop the engine before draining engine oil;
- When draining engine oil, place some container underneath the engine and dispose it according to local regulations;
- Do not drain oil right after running the engine. Allow engine to cool down sufficiently.

Remove the drain plug (Fig1.b) at the bottom of the engine, and drain all the oil, drain oil when the oil is warm.

(Fig.1)

a- oil filter   b- oil pan drain plug   c- dipstick

Change the type of engine oil according to the ambient temperature.

<table>
<thead>
<tr>
<th>temperature</th>
<th>oil specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>20° C</td>
<td>SAE15W-40</td>
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<tr>
<td>Oil change</td>
<td>spacing interval</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Fist time</td>
<td>After 20 hours</td>
</tr>
<tr>
<td>After fist time</td>
<td>Every 100 hours</td>
</tr>
</tbody>
</table>

**Clean the oil filter pot**

Replace the fuel filter cartridge with a new one every 100 operating hours.

Unscrew the bolt, and draw-out the oil filter bowl. (Fig.1.a)

**Air cleaner**

(Fig.2)

a. Open the aircleaner valve once a week under ordinary conditions - or daily when used in a dusty place. This will get rid of large particles of dust and dirt;

b. Wipe the inside air cleaner with cloth or the like if it is dirty or wet;

c. Avoid touching the element except when cleaning;

d. When dry dust adheres to the element, blow compressed air from the inside turning the element;

e. When the carbon or oil adheres to the element, soak the element in detergent for 30
minutes then wash it several times in water, rinse with clean water and dry it naturally;

f. After the element is fully dried, inspect the inside of the element with a light, and check
it is damaged or not (referring to the instructions on the label attached to the element.)

g. Replace the element every 200 hours.

**NOTE:** Make sure the wing bolt for the element is tight enough, dust and dirt may be
sucked in the air cleaner if it is loose, wearing down the cylinder liner and piston ring earlier,
and piston ring earlier, and thereby resulting in poor power output.

### 11.2 Mast maintenance

1. Always keep the mast clean and free from dust and rain. Wrap it with plastic paper
   when not in used.

2. The mast should not be hit.

3. When cleaning the mast, do not use acid or alkali liquid and do not let the liquid flow
   inside the mast.

### 11.3 Wire ropes maintenance

The wire ropes used raising and lowering the masts on the lighting tower are probably
some of the most important mechanical parts in day-to-day operation of the machinery. It is
therefore very important that the cables are inspected on a frequent basis (before operating
the lighting tower) for wear and tear, and immediately in the event of possible damage due
to operator error in using the winch, or possible damage from other equipments.

1. The wire rope should be regularly maintained in order to get rid of the damage caused
   by rust or dirt.

2. The groove of the reel and pulley should often be cleaned, if there is damage, please
   repair or replace them promptly.

3. In the course of using wire ropes, please avoid contact with dust,sand,coal sand,and
   Acid-base compounds.

4. When the lighting tower is unused, the wire ropes should be coated with anti-rust oil
   every six months.
DANGER:
If any breakages (partial strand cut through), kinks (permanent bends), or weld spatter on the cable (from field service) are observed, the suspect wire rope should be changed immediately.

11.4 Floodlights maintenance

(1) The metal halide must be used with ballast and trigger which conform to national standards. The fluctuation range of the voltage source should not exceed ± 5%;
(2) Please follow the guidance of manufacturers, and choose appropriate lighting;
(3) Cut off the power source and wait until the lamps is cooling before maintenance.
(4) when the light goes out suddenly, you should first check all the lines and connections to see if they are tight and function well, otherwise the light may expire and has to be replaced.

In case of replacement of the lamps or the floodlights’ glass, open the floodlight through the 4 stainless steel hooks (Fig.3), inserting a screwdriver in the appropriate slots previewed on the hooks. The hooks are with hinge to support the frame when opened. Replace the lamp or the glass. Close the floodlight’s glass carefully to position correctly the hooks in their seat.
Note: When replaced the lamp-house, open one side of the hook, manually hold the other side to avoid the damage of frame.
It is necessary to sustain the cover manually during replacement.

The requirements of the floodlights are as follows:

Type of lamp : metal halide
Base: E40
Nominal power: 1000W
Nominal voltage: 220V
12. Conclusion

We studied technology from home and abroad when developing this lighting tower, which is in the leading player in both markets. We are continuously sparing no efforts in developing various kinds of lighting tower to meet different needs of customers. We warmly welcome all the customers to give us suggestions and recommendations on the lighting tower. Thank you for purchasing our products again.

As we are continuing to make commitment to the upgrading and development of lighting towers, the chart, description, and parameters provided in this manual may be inconsistent with the product you purchased. If there is any doubt, please contact with our Marketing department or Agent.

Please handle the fluid and spare parts safely and environmentally.

All the specifications and pictures of the present catalogue are subject to modifications without prior notice.