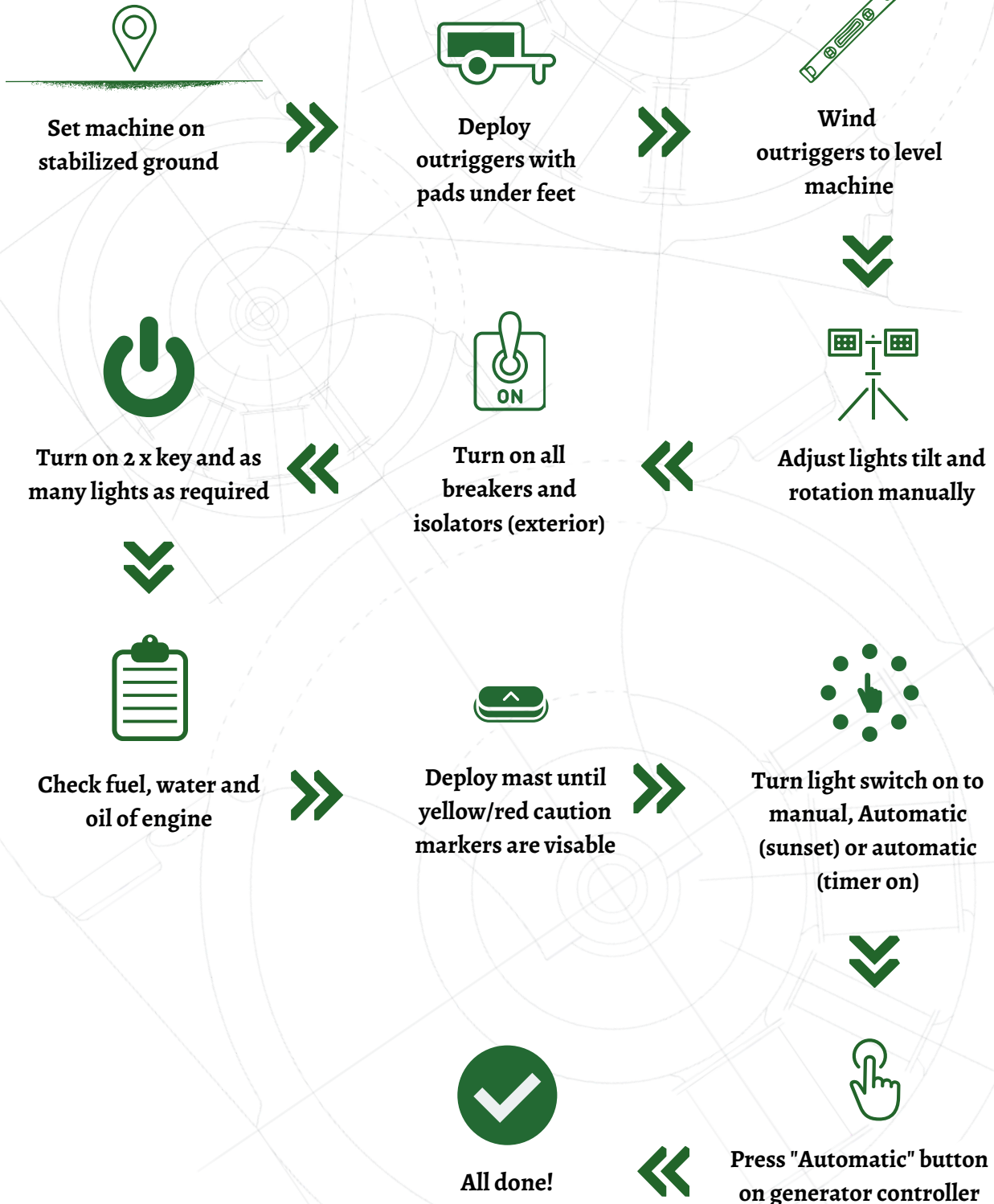


GP270k CUBE Hybrid LIGHTING TOWER



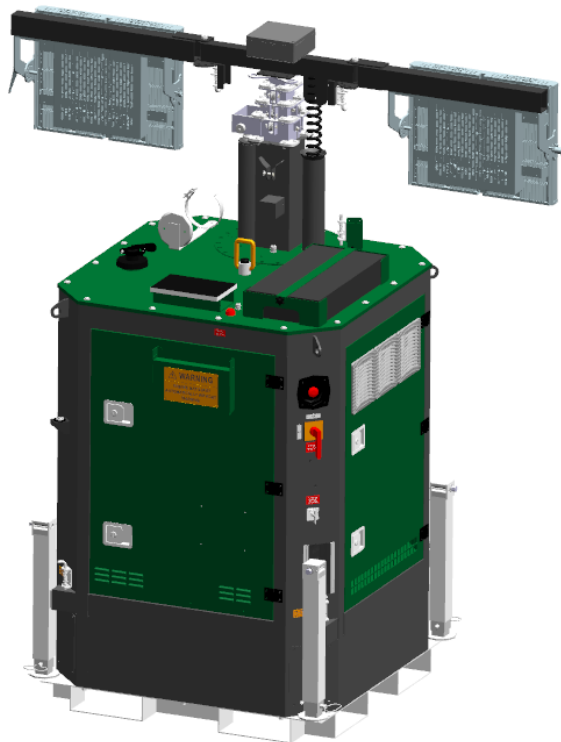
QUICK START





Operating Manual Cube Lighting Tower

Hybrid Cube – GP270k_V1





INTRODUCTION

This manual provides information and procedures to safely operate and maintain the Globe Power Cube Lighting Tower. For your safety and protection from physical injury, carefully read, understand, and observe the safety instructions described in this manual. *The information contained in this manual was based on units in production at the time of publication. Globe Power reserves the right to change any portion of this information without notice.*

DO NOT MODIFY or use this equipment for any application other than what it was designed for.

Always keep a copy of this manual with the unit. Additional copies are available from admin@coreprojectsenergy.com. The manual provides detailed operation and maintenance procedures. GLOBE POWER recommends that a trained and licensed professional perform all electrical wiring and testing functions.

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WHEN CALLING FOR PARTS OR TECHNICAL SERVICE INFORMATION, PLEASE HAVE YOUR UNIT SERIAL/MODEL/VIN NUMBER READY AND REFER TO THE EXPLOSION VIEW IN THE ASSEMBLY SECTION TO HELP FACILITATE YOUR CALL.

Unit Model Number: _

Unit Serial Number: _

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1. SAFETY NOTES



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid injury or death. This manual contains DANGERS, WARNINGS, NOTICES and NOTES, which must be followed to prevent the possibility of improper service, damage to the equipment, personal injury, or death. The manufacturer will not be liable for any misuse or damage caused to persons or objects, in consequence of non-compliance to and with safety standards.

DANGER

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

NOTICE

Indicates a hazardous situation that, if not avoided, may result in property or equipment damage.

NOTE

Notes contain additional information critical to a procedure and will be found within the regular text body of this manual.

1.1. OPERATING SAFETY



Before using the lighting tower, be sure you read and understand all the instructions! The unit is designed for specific applications. DO NOT modify or use it for any application other than what it was intended for. Read the operating instructions and familiarize yourself with the location and proper use of all instruments and controls. Inexperienced operators should receive training from someone familiar with the equipment before being allowed to operate or set up the lighting tower. The following points should always be practiced:

DANGER

**MUST LEVEL AND OPERATE THE LIGHTTOWER ON
RELATIVELY LEVEL AND SOLID POSITION (LESS THAN 2°
SLOPE)**

**PLEASE CONTACT MANUFACTURER FOR ASSISTANCE IF THE
MAST IS STUCK ON UNLEVELED GROUND**

WARNING

Do not touch hot surface with bare hand while unit is running, such as exhaust assemblies, engine and LED lights. Always wear suitable gloves if action is required.

- The area immediately surrounding the lighting tower should be dry, clean, and free of debris.
- Position and operate the lighting tower on a firm, level surface.
- NEVER operate a unit in need of repair.
- Lower tower when not in use, or if high winds or electrical storms are expected in the area.
- The mast can be extended up to 26ft. When the mast is being raised, make sure the area above the mast is open and clear of overhead wires and obstructions.
- Keep the area beside the machine clear of people while raising and lowering the mast!
- The machine must be levelled and outriggers extended before raising the tower. Outriggers must remain extended while the tower is up.
- If, for any reason, any part of the mast hangs up or the mast cable is damaged while raising or lowering the tower, STOP immediately and contact the manufacturer.
- NEVER use the tower if the insulation on the electrical cord is cut or worn through.
- If used in dense crowds, please set up guards 16.5 feet away from the unit to prevent unauthorized persons from approaching the machine.
- NEVER take power directly from the batteries.
- NEVER put conductive metal objects on the batteries.
- Do not remove the protective guarding installed over rotating parts, air intakes, and belts.
- Stop the engine before refuelling.
- Check for any spillage or fuel leaks, and contain and clean up immediately should spillage or leakage occur.
- Do not forget to insert the safety locking pin when adjusting the outrigger.
- A 4.5kg dry chemical powder fire extinguisher is located on the unit if it is needed.

1.2. SERVICE SAFETY



This unit includes solar modules, LEDs and batteries, which are Extra Low Voltage circuits capable of causing severe injury. Only a qualified electrician should troubleshoot or repair electrical problems occurring in this equipment. Failure to follow the safety guidelines described below could result in severe injury or death. Read and follow all safety warnings described in the manual.

The maximum voltage of the Light system is 110v DC

The maximum voltage of the Genset system is 80v DC

The maximum voltage of the Battery system is 60v DC

- Before servicing the lighting tower, make sure all the isolators and the circuit breakers are turned OFF.
- The emergency stop is in the OUT position for normal operation. Push the emergency stop in case of an emergency. The machine will not operate when the stop is engaged. Turn the emergency stop clockwise to release and press the stop button on the generator controller to reset the alarm.
- NEVER disconnect the cables from the battery while the isolators are on.
- NEVER allow water to accumulate around the base of the tower. If water is present, DO NOT service!
- NEVER wash the electrical components with a power washer or high-pressure hose.
- Please wear the correct PPE and use the insulated tools to replace the batteries.
- NEVER disassemble and repair the mast on an uneven surface. The mast must be hung and installed with the correct lifting equipment.
- NEVER replace the (electric/hydraulic cylinder) mast cable when the mast is extending.

- Make sure slings, chains, hooks, jacks, and other types of lifting devices are attached securely and have enough weight-bearing capacity to lift or hold the equipment safely. Always remain aware of the position of other people around you when lifting the equipment.
- HM46 anti-wear hydraulic oil is recommended and needs to be replaced once a year, including the filter, while the replacement for the first time should not be more than 3 months.
- The engine start battery may be of the maintainable type if fitted. Extreme caution when checking and or maintaining due to containing sulfuric acid, which is extremely corrosive and harmful to the skin. Always wear gloves, eye protection and be extremely cautious to avoid spillage when pouring acid.

2. SPECIFICATIONS

DIMENSIONS & WEIGHTS			
GP270K-H V1.1	Dimensions (in)		WET Weight (Lbs)
	Stowed	61L X 51.2W X 100.4H	3307
	Deployed	98.4L X 96.8W X 297.2H	
SYSTEM PARAMETERS			
Run Time		285 hours (Full tank)	
System Voltage		DC48V	
Wind Rating Speed		80MPH	
GENSET			
Generator		Perkins 403D-11G	
Genset Output		3.4kW DC72v	
Fuel Type		Diesel	
Fuel Consumption		0.21 Gal/hr. @75% Load	
Fuel Tank Capacity		60.7Gal fully bunded	
Alternator		Sinocox SMD132C	
Noise Level		65dB at 21ft	
Controller		Smartgen ALC404	
BATTERY			
Capacity		5.12kWh	
Chemistry		Lithium iron phosphate	
LAMP			
Type of Lamp		LED Lamps	
Lamp No.		2	
Lamp Wattage		1800W total	
Total Lumens		270,000	
Light Rotation		Manual	
MAST TOWER			
Type		Hydraulic Mast	
Mast Rotation		180° manual Rotation	
Total Height		25ft	
CUBE			

Stabilizers	4x manually adjustable
Lifting Point	1

3. OPERATION

3.1. PRE-START

Before starting the unit, all items below must be checked.

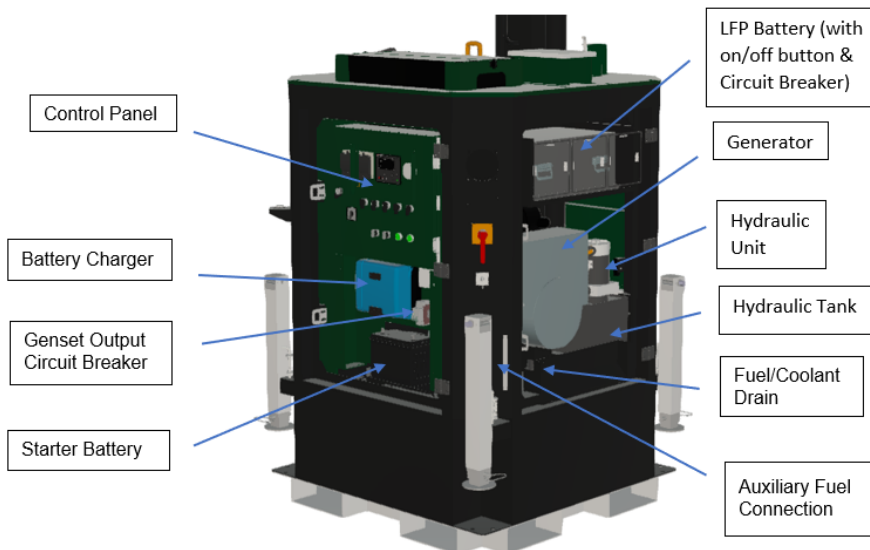
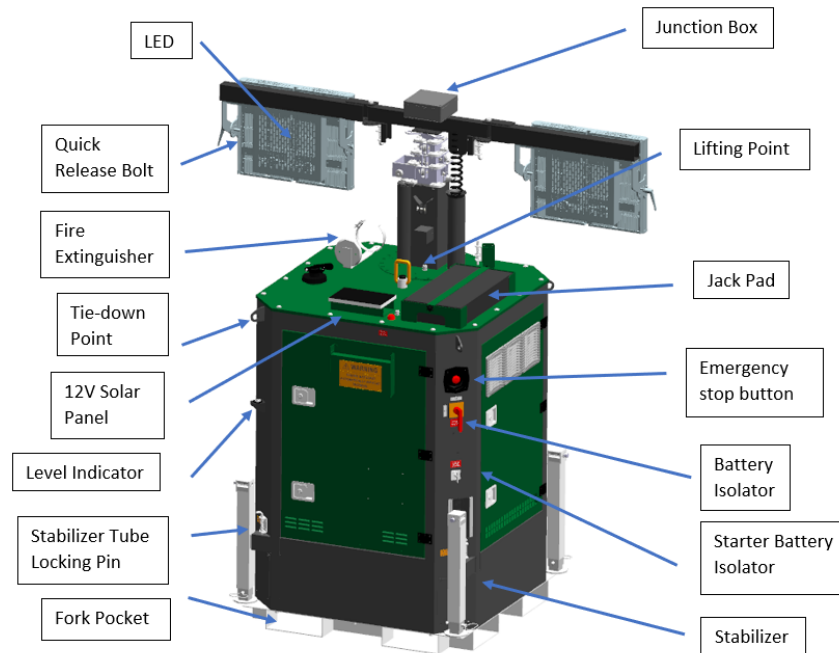
- Read and understand ALL safety sections at the beginning of this manual.
- Check the logbook that all maintenance and inspections are up to date.
- Check engine oil, fuel, coolant level and leakage.
- Check the condition of the battery, genset, fire extinguisher, and LED lights.
- The unit must be dry inside. Check for any water inside, on, or near the unit; drain and wipe if needed.
- Check the circuit breakers (LED and battery) are on, and that emergency stop buttons are released.
- Inspect all electrical cords and mast cables; repair or replace any that are cut, worn, or bare
- Verify all covers are in place and secure.

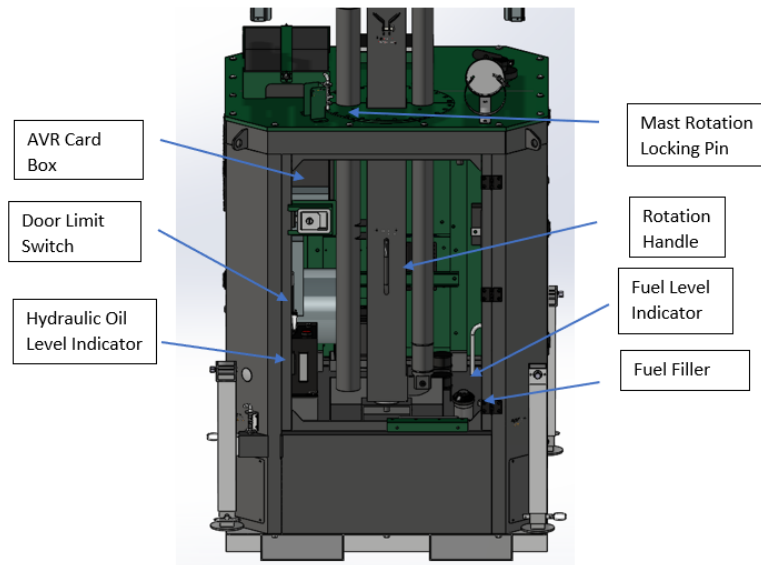
3.2. COMPONENTS



1. Circuit Breakers	LED&Genset Circuit Breaker
2. Generator Controller	Lighting tower Genset Controller
3. Battery Meter	Displays the battery condition
4. Timer Controller	Timer mode controller
5. Bypass switch	Bypass door switch
6. Controller Switch	Generator controller power switch
7. LED dimmer	LED dimming
8. Trammig Alarm	Mast Operation Alarm
9. Mast Up Button	Push to raise mast up
10. LED Function Switch	Turn on/off lights under manual, timer or auto mode
11. LED Switch 1	Switch for each LED light
12. LED Switch 2	Switch for each LED light
13. Emergency Stop Button	

14. Alarm overwrite switch	Tramming Alarm overwrite
15. Mast Down Button	Push to lower mast down





3.3. LIGHTING TOWER SET UP

Use the following guide to implement and optimize the performance of the unit.

⚠ WARNING

The tower extends up to 25ft. Make sure the area above the unit is open and clear of overhead wires and obstructions.

⚠ WARNING

To manually adjust individual light a platform ladder is needed. Potential risk of fall injury

⚠ WARNING

The selected position should be well-ventilated, taking care that the discharge of hot exhaust gases does not impact any persons, structures, or objects.

⚠ WARNING

Check the exhaust is not allowed to be sucked into the machine as this can cause problems increase in operating temperature and excessive blockage of the air filter.

⚠ DANGER

Do not operate/set up the unit in a dangerous area or under hazardous weather conditions such as strong wind, storm or overhead power lines.

1. For maximum light coverage, locate the unit at ground level or in a spot higher than the area being illuminated by the lamps.
2. Ensure the ground is flat, and stable, and allow the machine to operate free from any contact

from any other surrounding structures or objects.

3. Pull the locking pins on the stabilizer tube and extend each of them until the tube locking pin snaps back into place. Drop the stabilizer drop-legs until it is close to the ground, and apply the locking pin.
4. Place the jack pad under the stabilizer. Use the 17mm jack handle behind the control door to adjust the stabilizer until they are firmly in contact with the jack pad and level the tower. The bubble in the level indicator needs to be centred before raising the mast.
5. Pull the locking pins on the light bar and rotate the light bar to the desired angle and release the locking pins,
6. Before raising the mast, it may be necessary to adjust the LED lamps if greater light coverage is required. The LED lights can be manually tilted by loosening the quick-release bolt on the light bracket and relocking them in the desired direction. Retighten the quick-release bolt and make sure all the lights are secured to the bracket.



WARNING

Do not operate the unit if the electrical cord or mast cable insulation is cut or worn through. Repair or replace the cord if needed

7. Unlock the mast rotation locking pin and manually rotate via the rotation handles on the mast.
8. Turn on the battery starter isolator and press the “UP” button on the control panel to lift the tower to the desired height.


3.4. START PROCEDURE

NOTICE

When the battery is over discharged, it will enter sleep mode and de-energize the protection circuit. The generator will not charge the battery at this stage. Contact a service center to resolve the issue.

NOTICE

The light will not operate if the controller is on “STOP”, alarm or low battery. Press the “AUTO” button on the generator or clear the alarm for the function switch to work.

1. Turn on the Battery Isolator
2. Wait until the battery meter powers on
3. Switch on the battery starter isolator
4. Switch on the generator controller power switch
5. Press the “AUTO” button on the generator controller, select “remote start mode” and press  key to confirm the action.
6. Switch the function switch to the desired mode described in section 3.7

3.5. LOWERING THE MAST AND RETRIEVING THE STABILISER

NOTICE

Do not turn off the isolators or emergency stop after each operation.
It is only for storage, maintenance and emergency purposes.

1. Turn off the lights and check for any visible damage before lowering the mast.
2. Press the "DOWN" button on the control panel to lower the mast
3. Pull the locking pins on the light bar, rotate the light bar inward and release the locking pins
4. Retract the stabilizer legs with 17mm jack handle
5. Retract the stabilizer tube and use the locking pin to lock them in place.

3.6. SHUTDOWN PROCEDURE

⚠ WARNING

Only use Emergency stop to turn off the generator in case of emergency. For normal operation, always use the generator control's "STOP" button to turn off the generator.

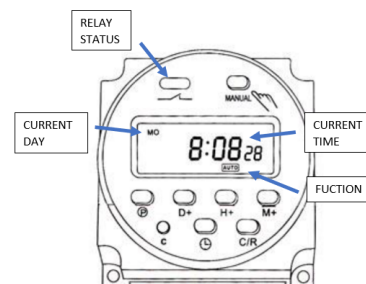
1. Check the capacity of the battery through the battery meter, if the battery is low, manual start the generator and fully charge the battery.
2. Press the "STOP" button on the generator controller, if the generator is running, wait for the generator to shut and cool down.
3. Switch off the generator controller power switch.
4. Turn off the battery isolator and starter battery isolator.

3.7. LED FUNCTION SWITCH

- Turn the function switch to the "MANUAL" position for LIGHT MANUAL ON mode.
- Turn the function switch to the "TIMER" position for TIMER ON/OFF mode. The lights will be turned on and off based on the timer controller settings.
- Turn the function switch to the "AUTO" position for DAWN/DUSK mode. The light operation will be based on ambient light (default 70lux).

3.8. TIMER CONTROLLER

1.	Ⓟ	Timer
2.	D+	Day
3.	H+	Hour
4.	M+	Min
5.	🕒	Clock
6.	C	Reset
7.	MANUAL	Function switch
8.	C/R	Cancel/recovery



1. For the first time start: press the reset key (C) to reset the parameter.
2. Press clock (🕒) to check the current time setting, then press D+, H+, M+ while press and hold 🕒 to adjust the present time.
3. Program the time as shown below:



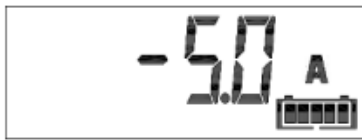
Step	Key	Programming
1.	Press P	The screen will display 1-ON (setting-1 ON time)
2.	Press H+/M+	Program hours and minutes for 1-ON time
3.	Press D+	Program 1-ON day in the week
4.	Press P	The screen will display 1-OFF (setting-1 OFF time)
5.	Press H+/M+	Program hours and minutes for 1-OFF time
6.	Press D+	Program 1-OFF day in the week
7.	Repeat steps 2-6	Set 2-17 on/off time. If you do not require other time settings, go to step 8
8.	Press ⌚	Escape programming
9.	Check the timer function is on AUTO(default), if not, press the “manual” button till the function change from OFF to AUTO mode	





3.9. BATTERY METER

The unit comes with a battery monitor which measures the battery voltage and current. Based on these measurements, it calculates the battery's state of charge and automatically starts the generator base on the battery condition.

For a reliable readout, the state of charge as displayed by the battery monitor has to be synchronized regularly with the true state of charge of the battery. This is accomplished by manual start the generator and fully charging the battery regularly.

All monitored battery parameters can be read out, and settings can be changed via the display and the four buttons, use the + and – selection buttons to scroll through various read-outs:

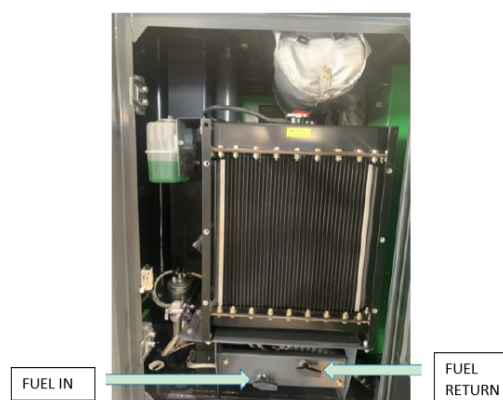
<ul style="list-style-type: none"> Battery voltage 	
<ul style="list-style-type: none"> Auxiliary battery voltage 	
<ul style="list-style-type: none"> Current The actual current flowing out of the battery (negative sign) or into the battery (no sign). 	

<ul style="list-style-type: none"> Power The power drawn from the battery (negative sign) or flowing into the battery (no sign). 	
<ul style="list-style-type: none"> Consumed Amp-hours The amount of Ah consumed from the battery. Note: Three dashes '---' will be shown when the BMV is started in unsynchronized state. 	
<ul style="list-style-type: none"> State-of-charge A fully charged battery will be indicated by a value of 100.0%. A fully discharged battery will be indicated by a value of 0.0%. Note: Three dashes '---' will be shown when the BMV is started in unsynchronized state. 	
<ul style="list-style-type: none"> Time-to-go An estimation of how long the battery can support the present load until it needs recharging. Note: Three dashes '---' will be shown when the BMV is started in unsynchronized state. 	

3.10. THREE-WAY FUEL VALVE

The unit contains a three-way valve tap for external fuel tank operation.

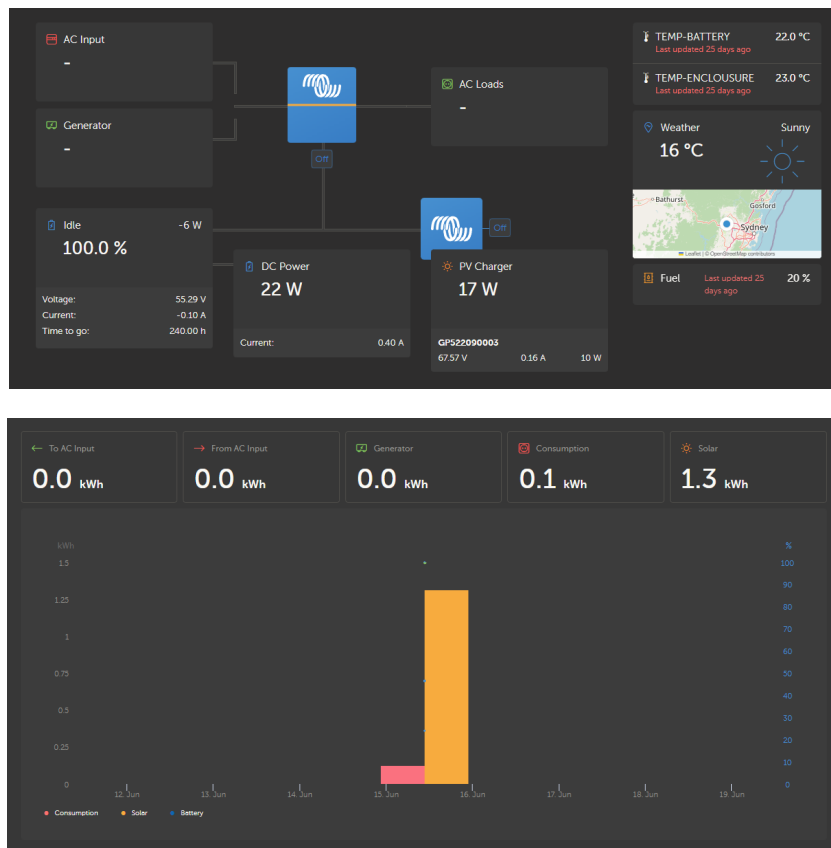
- Rotate both T-valves to the left to run the generator from the belly tank
- Rotate both T-valves to the right to run the generator from the external tank



3.11. REMOTE MONITORING (optional)

The light tower also comes with optional remote monitoring through the Victron VRM portal. The VRM portal monitors the battery state of charge and power consumption from the generator, GPS location and generator fuel level in real time. The portal also includes email alerts, usage with historical graphs and detailed analytical reports.

Note: Please contact manufacturer for online VRM portal link for remote wireless monitoring.



4. TRANSPORT

⚠ WARNING

Never load or unload the unit when the mast is extended.

⚠ WARNING

The manufacturer will not be held responsible for any damage caused by negligence during the transport operations.

4.1. LIFTING

The unit can be lifted by using the rear fork pocket or the lifting point lugs located on the centre of the unit. For approximate weights, refer to the Specifications section or the specification plate on the unit. Always remain aware of people and objects around when moving or lifting the unit. Make sure the mast is correctly lowered, packed and every part is locked before transport. The lifting eye/hook is for Lift Only. It is designed to be used exclusively for temporary lifting and not to keep machines suspended for a long period.

4.2. TIE DOWN

1. When securing the unit for transportation, use the tie-down points on each corner for anchoring down to the transport surface.
2. Use a minimum of four chains to secure the machine.

5. STORAGE

If the machine is to be stopped for a long period (over a year), It is recommended to keep all fluids in the machine to be full, topped up if required to avoid oxidizing effects and configure the machine as follows:

1. Turn off all isolators and circuit breakers.
2. Turn off the battery power button.
3. Turn on the unit and charge the unit with the generator or external charger every six months for maximum battery life.

Before the machine is put back into service after a long period, it is recommended that all fluids be replaced, and the battery be charged; Belts, tubing, and rubber hoses and their condition must be checked, and visual inspection of the electrical connections must be carried out.

6. MAINTENANCE

6.1. SERVICING THE UNIT

Regular maintenance service and replacement of parts are the responsibility of the owner/operator and, as such, are not considered defects in materials or quality within the terms of the warranty. It is strongly recommended that a Globe Power Authorized Dealer periodically check the equipment. Periodic maintenance and occasional repairs are necessary for safe operation and maximum usable life. NEVER perform routine service unless all electrical components are shut down and isolated and locked out. Before servicing this equipment, make sure you are familiarized with the servicing manual.

6.2. CLEANING

WARNING

Residual water is not recommended to clean the inside of the machine as water can cause corrosion which weakens the component parts. If water is used, avoid spray on any electrical component and clean any water left on or in the machine.

DANGER

Pressure washing is not to be used to cleaning the inside of the machine as the force of the spray can damage the hoses and electrical component inside.

It is recommended frequent cleaning of the machine to avoid the presence of dirt and debris. The frequency of this operation depends very much on where the machine is used.

1. Blow off dust and debris with your air compressor or compressed air (canned air),
2. Wipe the surface with a clean cloth and degreaser (non-flammable) and soft brush.
3. Clear any dust from the cooling vents.

6.3. ENGINE FLUID EXCHANGE

It is recommended to regularly exchange the engine fluid according to the maintenance table.

1. Warm up the engine before draining the engine oil, as this will aid in the draining process.
2. Ensure the engine and battery isolator is in the OFF position.
3. Open the engine oil drain valve inside the machine
4. Connect the vacuum unit to the quick coupling evacuation point and drain the oil.
5. Close the valves when completed
6. Refill the engine oil
7. Repeat the same procedure for the coolant exchange

NOTE

Dispose of the fluid by complying with the environmental law of the country where the machine is being used.

6.4. MAST CABLE

The mast cables are 5mm in diameter and are composed of stainless steel wires. This allows the telescopic mast to be raised and lowered through the hydraulic cylinder. It is important to periodically check the drag condition inside the pulleys. Depending upon the location and condition when the machine is being used, cable conditions may require more frequent inspection. It is recommended that all cables and pulleys be replaced earlier than intended in the maintenance schedule if the cable shows signs of unusual wear or damage.

6.5. MAINTENANCE CHECKS

⚠ WARNING

Failure to comply with the maintenance procedures described in this manual will breach the warranty, decrease performance, and cause equipment damage or premature equipment failure. Maintenance records are required to be completed for warranty

Use the schedule in the following table as a guide for regular maintenance intervals.

ITEM	Service Interval				
	Every				
	Daily	500hrs	1000hrs	2000hrs	4000hrs
Check for all fluid leaks	*				
Check engine oil level	*				
Check coolant level	*				
Replace coolant				*	
Check hydraulic oil level		*			
Replace engine oil		*			
Replace engine oil filter		*			
Replace fuel filter		*			
Replace fuel water separator filter element		*			
Replace air filter		*			
Check fan belt condition & tension		*			

Replace fan belt		*			
Check radiator hose & clamps		*			
Replace radiator hoses				*	
Check fuel lines, connections, and clamps		*			
Replace fuel lines				*	
Check start battery fluid		*			
Check guards and covers		*			
Check for lose nuts and bolts		*			
Check exhaust assembly		*			
Check electrical connections		*			
Check electrical switches		*			
Check door latches and hinges		*			
Check stabilizers operation and condition		*			
Check decals fitted and condition		*			
Check lifting point and condition		*			
Check tie down points and their condition		*			
Check mast assembly condition assembly and hardware		*			
Check and adjust if required mast slide pads		*			
Check mast rollers, pins, and cables		*			
Replace mast rollers, pins, and cables					*
Check mast light electrical cable and retainer		*			
Check & confirm all LED lights are working	*	*			
Check light heads mounting and security		*			
Check LFP Battery Condition	*				
Synchronize Battery SOC	*	*			

6.6. TROUBLESHOOTING

Listed below are the common problems that may occur during the use of the light tower and their possible solution.

If the light tower does not operate properly, please contact the manufacturer or local servicing centre to find and eliminate the cause of the problem.

Abnormal	Cause	Solution
Light doesn't work	The controller is on OFF mode	Set the controller to MANUAL or AUTO
	e-stop is pressed	Release e-stop. Press the stop button to clear the alarm.
	Low battery	Start the generator manually to charge the battery.
The generator doesn't start.	Door is open	Check the door is closed and energize the limit switch.
The Starter works/crank, but the engine will not start	Low starter battery	Replace starter battery Check alternator is charging the battery
	Lack of fuel level	Fill fuel

	Dirty fuel/air filter	Replace the filter
	Faulty fuel pump	Check the electrical connection of the pump. If necessary, contact the manufacturer for replacement.
Unstable output voltage/engine speed	Irregular motor speed	Contact manufacturer
	AVR card	Contact manufacturer
Low oil pressure symbol on the controller	Low engine oil	Top up oil
	The pressure switch is defective.	Check the pressure switch connection, and replace it if necessary.
High engine temperature alarm	Low coolant level	Top up coolant
	Broken fan belt	Clean radiator
	Blocked radiator fins	Replace fan belt