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Portable Light Fitting Trailer



Operating Manual

22 May 2024



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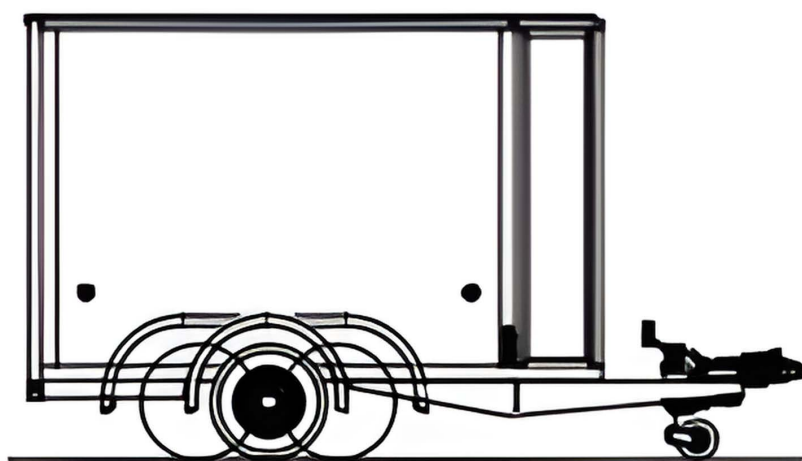
1. Description

The Trailer is an Ifor Williams BV126 trailer converted by Airfield Lighting Systems (UK) Limited for use as a portable lighting trailer. It is complete with 80 ALS Polaris re-chargeable portable lights for use on airfields.





2. Dimensions



Total Length to Towbar	Width	Height (Floor to roof)	Height from floor to centre wheel	Height inside trailer to taper point	Height inside trailer
5.35m	2.3m	2.6m	0.38m	1.73m	2.14m

Total Weight of Trailer (excluding lights) 3500Kg's
Weight of 80 Lights 472Kg's

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3. Electrical

240V IP67 Power Supply Socket.



Input Voltage 240V 50Hz
Rated 32A
Power Cable not included.

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3. Electrical

Consumer Panel inside trailer by rear door entrance.



Fuses

- RB01 - Socket Charge x 2
- RB02 - Socket Charge x 2
- RB03 - Socket Spare
- RB04 - 240V Light in Trailer

Trailer Power Sockets.

The Trailer has been fitted with three Mains double sockets, two of these are provided one on each side of the trailer so that the Charging Racks PSU can be connected.

Trailer Internal Lighting.

The Trailer has been fitted with two forms of internal lighting Mains powered and 12v DC power.

- The Mains operated Batten Light fitted to the roof of the trailer is controlled via two light switches, one at each entrance. This can be operated when the trailer is connected to the Mains supply via the IEC309 Inlet 32A 230vV 2P+E IP67 Connector
- There are two LED 12V operated Light fitted above both entrance doors with their own on/off switch. These light will be active when the Trailer is connected to the vehicle towing it.

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4. Charging

Four sets of charging racks each holding 4 x 5 Polaris Portable Airfield lights.



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4. Charging

Charging Rack PSU (20 post).



Image - Bank 9-12



Power 500W
Input 230V AC

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5. Trailer

Power connector to tow bar for trailer lights and indicators (13 Pin)

Handbrake

Parking wheel and trailer leveler

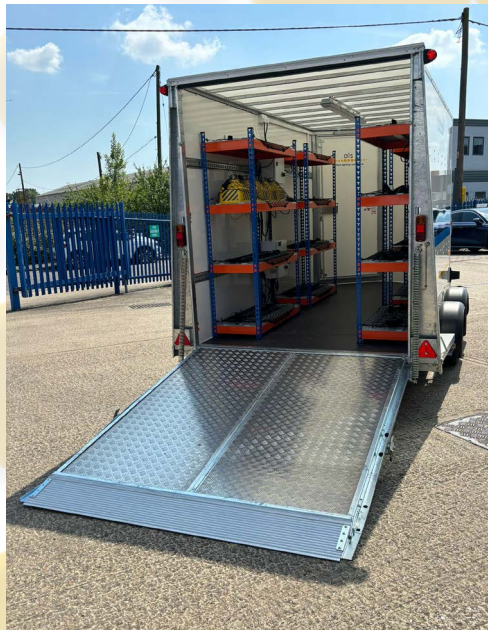


Towing Point

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5. Trailer

Rear doors - can be opened vertically or horizontally.



Access also via the front door by the Towbar.

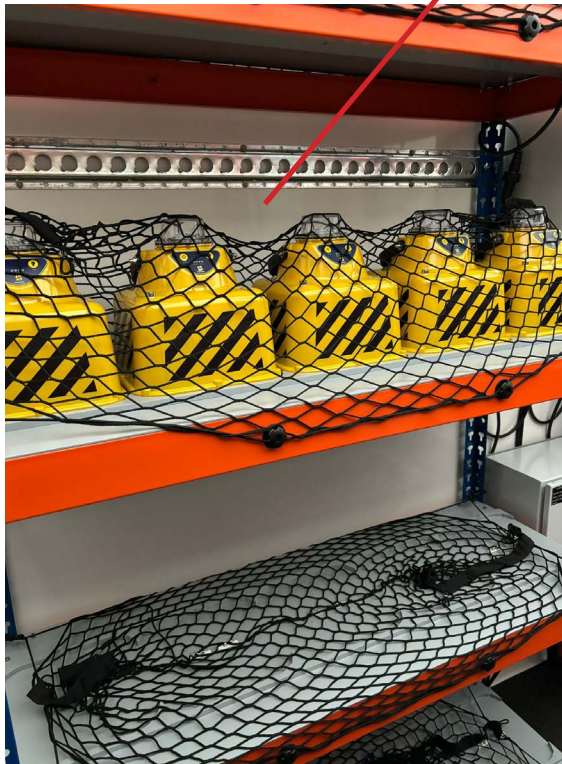


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6. Transport & Safety

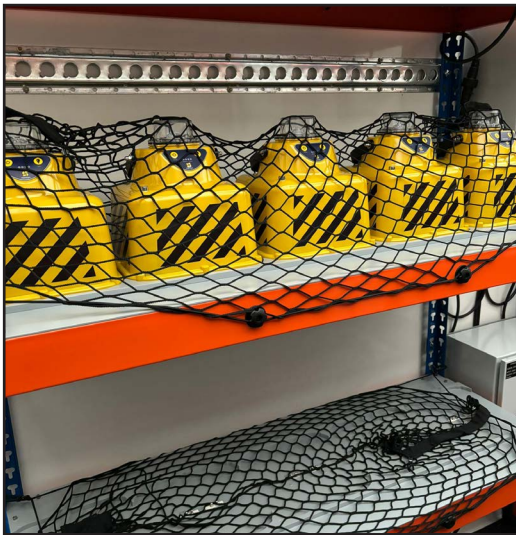
Cargo nets to protect portable lights during transit, can be adjusted via clips to tighten if not all lights are on the charging base.



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7 Images



8. Polaris Portable Light Operating Manual



POLARIS - Manual

SAFETY ADVICE

1. COMPLIANCE WITH INSTRUCTIONS IN THIS MANUAL

The purchaser/user is advised to comply with the instructions and information in this manual and ensure that all personnel to be associated with the apparatus under this contract are made familiar with the information contained herein.

2. GUIDANCE NOTES FOR USERS ON THE SAFETY OF PERSONNEL

Every employer shall ensure that his employees are informed, trained and supervised and use a safe system of work to ensure their safety. He is advised to comply with the information provided, to maintain the plant in a safe condition. Electrically skilled personnel may have to gain access to apparatus that is not completely isolated. The burden of responsibility, for the safety of such personnel carrying out the work, rests on those under whose authority they act.

3. INSTALLATION, OPERATION AND MAINTENANCE

The purchaser/user is advised to ensure that each piece of apparatus supplied to the purchaser's order is correctly installed, in a suitable location, by technically qualified and competent persons experienced in the class of work involved. The rules for ensuring the safety of personnel can be summarised as follows:

During normal use, ensure that plant operators:

- are fully conversant with all controls, particularly those for emergency shut down.
- comply with safety warning notices and keep all enclosures shut.
- are trained to recognise signs of mal-operation and know what action to take in the event of trouble or difficulty.

During Maintenance, Testing etc., ensure that only suitably skilled persons are permitted to carry out work and that they:

- comply with user's safe system of work and safe working procedures,
- isolate the apparatus completely, where possible, before opening enclosures and starting work,
- are conversant with the information provided particularly on measures relating to their safety,
- recognise the hazards which can arise when working on live apparatus and take all the necessary precautions,
- comply with all local safety regulations.

4. VOLTAGES GREATER THAN 50V A.C./120V D.C.

The purchaser/user is advised to ensure that apparatus operating on a voltage greater than 50V a.c./120V d.c. is isolated and made safe before any work is carried out upon it.

5. APPARATUS SUPPLIED AS LOOSE ITEMS, CHASSIS ETC.

The purchaser/user responsible for installing such apparatus is advised that, when live, it could constitute a safety hazard and relevant safety procedures are necessary.

6. ACCESS TO THE APPARATUS DESCRIBED IN THIS MANUAL

It is the purchaser's/user's responsibility to ensure that all personnel obtaining access to the apparatus are competent and work in accordance with the user's safe system of work.

Explanation of symbols:



Correct



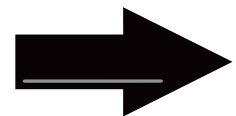
Incorrect



Warning



Look / See



Location

Record of Personnel made aware of Safety Advice.

Position/Job Title:

Signature:

Date:



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Portable

POLARIS - Manual

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POLARIS - Manual

DESCRIPTION

POLARIS emergency lights, powered by batteries, are specially crafted for deployment in airports and heliports as temporary substitutes for malfunctioning units within the primary lighting system. These lights feature a single RGBW LED capable of emitting a wide range of colors—including red, green, blue, and white—allowing for customization according to specific signaling needs or regulations. The design includes an omnidirectional beam, ensuring that the light is visible from all directions. This feature is crucial for maintaining visibility and safety around aviation environments, providing a versatile solution during emergencies or when the main lighting system is compromised.

The lights can be used as:

UNSERVICEABILITY, END or STOP light	- RED	- 10 cd omnidirectional
TAXI light	- BLUE	- 2 cd omnidirectional
TLOF or THRESHOLD	- GREEN	- 50 cd omnidirectional
FATO or RUNWAY edge light	- WHITE	- 100 cd

1. INSTALLATION



To ensure optimal performance and stability, POLARIS lights are designed to be placed on surfaces that are flat, horizontal, and free from moisture. This positioning ensures that the lights function correctly and are less likely to be knocked over or damaged. The importance of a dry surface cannot be overstated, as moisture could potentially compromise the electrical components of the lights or lead to corrosion over time.

For ease of transportation and to facilitate movement from one location to another, the POLARIS lights are equipped with a handle. This handle is designed to be sturdy and comfortable, allowing for a secure grip. It's attached in such a way to balance the light's weight evenly, making it convenient to carry the lights without straining or risking damage to the unit. This feature is particularly useful for setting up or rearranging lighting on the runway or on heliports, ensuring that the lights can be easily moved to where they are needed most.

2. LOCAL / MANUAL CONTROL



Following installation, press the ON/OFF button to connect the battery, thereby powering the POLARIS unit. Once the unit is powered, the yellow LED on the SIGNALIGHT LOGO will blink every 5 seconds, indicating that the light is in STANDBY mode.

Press the "Light" button to activate the MAIN LEDs. The first press will display the battery's charge level through the 4 signal LEDs:

- One LED lit indicates the battery charge is between 0 to 25%.
- Two LEDs lit signify the battery charge is between 25 to 50%.
- Three LEDs lit denote the battery charge is between 50 to 75%.
- All four LEDs lit means the battery charge is between 75 to 100%.

The display showing the battery's charge level will turn off after approximately 10 seconds, and the status LEDs will go dark. Pressing the "Light" button again activates the MAIN LEDs in RED. A subsequent press causes the RED LED to blink five times, after which the light will operate based on the photocell, illuminating only at night in RED.

Pressing the "Light" button again switches the LED to BLUE; another press and the blue LED blinks five times, setting the light to operate with the photocell at night in BLUE.

A further press changes the LED to GREEN; pressing again makes the GREEN LED blink five times, enabling night-time operation in GREEN based on the photocell.

Another press of the "Light" button turns the LED WHITE. Pressing again results in the WHITE LED blinking five times, after which the light will function with the photocell at night in WHITE.

Pressing the button once more turns off the light, and the POLARIS unit enters STANDBY mode.

When the light is in STANDBY, the LOGO's yellow LED will blink once every 5 seconds.

When the light operates based on the photocell, the LOGO's yellow LED will blink every 5 seconds

Disconnecting the battery

Holding down the "Light" button for more than 3 seconds will disconnect the battery. This step is advised when the lamps will not be used for an extended period or during transportation to ensure there is no power consumption. Prior to disconnection, the main LEDs will blink three times as an indicator. Once the battery is disconnected, the LED on the logo will turn off.

To protect the battery from over-discharging and potential damage, if the battery voltage drops below 10.2 volts, it will automatically disconnect.

2. HANDHELD RADIO REMOTE CONTROL



The remote control, powered by batteries, can simultaneously transmit commands to all the lights. To extend the battery's life, switch off the remote when it's not in use. If the remote control is powered the status LED from the right is ON.

Pressing the RED button activates the lights in red, and similarly for other colors. To turn off the lights, press the OFF button.

For photocell mode activation, press a color button followed by the BLACK button. The chosen LED color will blink five times and then turn off, automatically illuminating when darkness falls.

After each push, for a command, the LED status from the left lit for few seconds until the order is transmitted. One can send another command just after the status LED is OFF.

3. CHARGING

To recharge, the POLARIS emergency lights need to be positioned within their designated charging racks. Each light has two circular, gold-plated contact pads located on its bottom: the central pad is positive (+), and the outer pad is negative (-). These pads are designed to align with and make contact with POGO PINS, which are spring-loaded connectors in the charging rack. The gold plating on the pads enhances conductivity and resistance to corrosion, ensuring a reliable charging connection over time. The use of POGO PINS, with their spring mechanism, allows for easy placement and removal of the lights from the charger, while maintaining a consistent electrical connection necessary for efficient charging.



To charge, the lamps should remain in their racks for a duration of 12 to 15 hours, the exact time depending on the extent of battery depletion. Throughout the charging process, the signal yellow LED will remain steadily lit to indicate that charging is in progress. Once the battery reaches full charge, the signal LED will switch off. If needed, the battery level can be assessed at any point during charging by pressing the push button.

Charging should occur in an environment maintained at a temperature of around 20°C to ensure optimal charging conditions and battery health. The lamps are designed to be safely stored in the charger for several days if necessary, with the system keeping the battery topped up at 100%.

For longer periods of inactivity, it's advised to fully charge the batteries before disconnecting them using the previously mentioned procedure to minimize battery degradation. To maintain battery longevity and performance, it's recommended to check and recharge the batteries every three months, ensuring they remain in good working condition even when not in regular use.



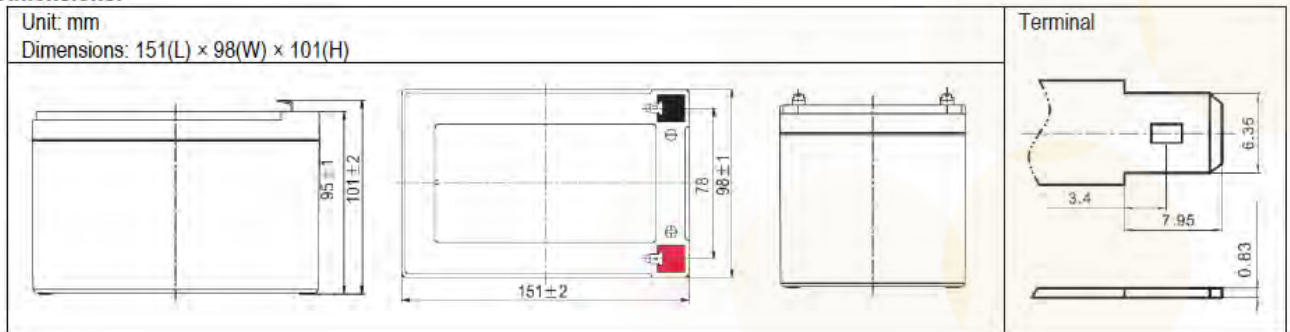
Warning

During charging, the MAIN LEDs on the lamp should be off. If the lamp is placed in the charger while it is turned on, it will automatically turn off. This feature ensures that the lamp conserves energy and focuses on recharging the battery, rather than emitting light unnecessarily. This automatic shut-off mechanism is designed to enhance the efficiency of the charging process and prolong the life of the battery by preventing it from discharging while it's supposed to be charging.

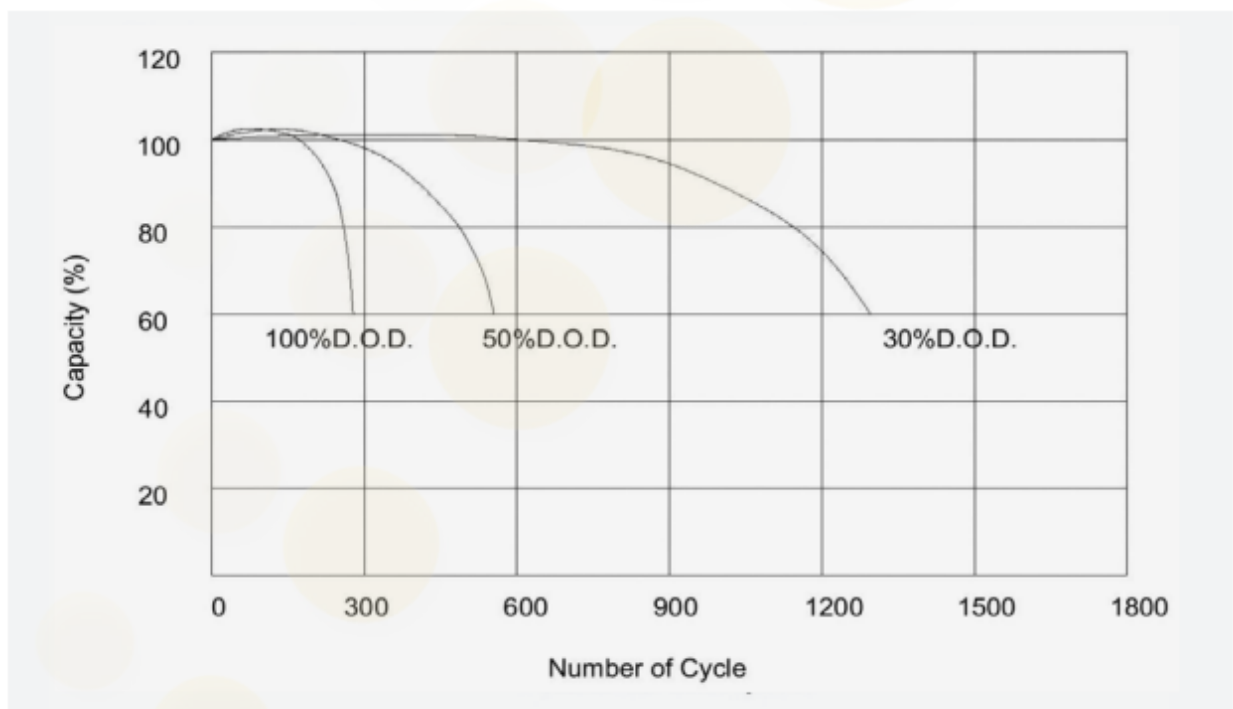
4. BATTERY REPLACEMENT

The batteries used in POLARIS lights are standard 12 V/12 A lead acid batteries with the following dimensions:

Dimensions:

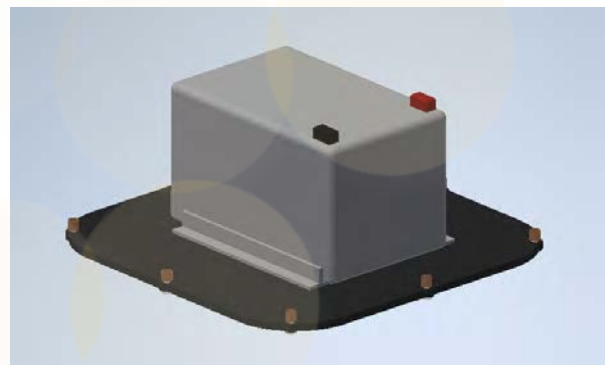


Depending on how the lamps are used the batteries can last from 300 to 1500 cycles of charging/discharging.



The energy consumption of a POLARIS light varies based on the color of the LED used: approximately 1 watt (W) for red light, 0.3W for blue light, and 1.5W for both green and white lights. With a fully charged battery holding around 144 watt-hours (Wh), the operational autonomy of the lamps can be estimated as follows: around 144 hours for red light, 480 hours for blue light, and 95 hours for both green and white lights, assuming the battery is new, fully charged, and operating in an ideal temperature of 20 degrees Celsius.

Should the lamp's operational time fall significantly below these estimated durations, it indicates that the battery may need to be replaced. To replace the battery, one would need to unscrew the 8 screws located on the bottom of the lamp to access the interior. Then, disconnect the existing battery, remove the battery bracket, and install a new battery. This procedure ensures that the POLARIS light continues to function efficiently, providing reliable lighting under various conditions.

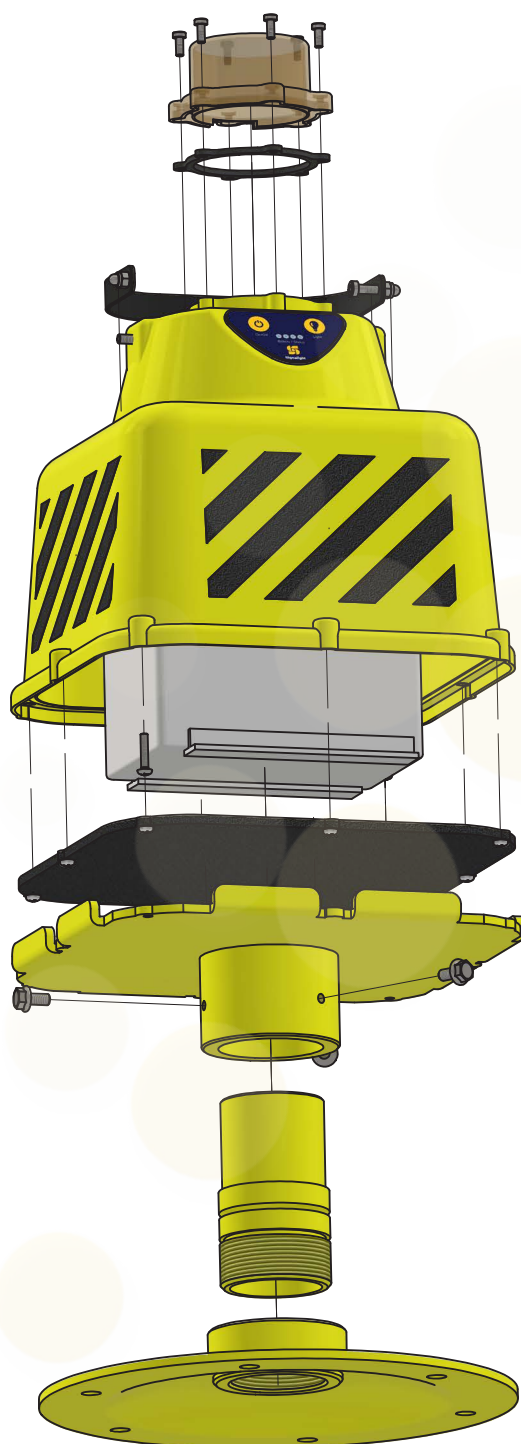


After installing a new battery in the POLARIS lamp, the next step is to place the lamp into its charger to ensure the battery is fully charged. This process is crucial for verifying that the new battery can hold a charge and to assess its operational autonomy accurately. Once the lamp has been fully charged, it's important to conduct a test to determine how long the lamp operates on a single charge, especially under the specific conditions it's designed for, such as continuous operation at a designated LED color setting.

Another indicator that the battery requires replacement is if its voltage drops below 10 volts and does not show any increase during the charging process. A battery that fails to charge adequately, indicated by its inability to reach and maintain a voltage level sufficient for normal operation, is likely to be defective or at the end of its usable life. Such a condition not only affects the lamp's performance but can also be an indicator of potential battery failure, necessitating its replacement to maintain the lamp's reliability and safety.

5. PARTS

Exploded
view



6x IMBUS M3 screws AL-176-AX

PC disperser AL-177-AX

Rubber gasket AL-178-AX

Handle AL-179-AX

POLARIS case AL-180-AX

12V/12 A Battery AL-181-AX

Base plate charging pads AL-182-AX

Polaris support
(optional) AL-183-AX

Frangible
coupling
(optional) AL-101-AX

Base plate
(optional) AL-102-AX

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