MASTER-LEE ENGINEERED PRODUCTS, INC.

APOLLO-100K LED FLOODLIGHT SYSTEM

USER MANUAL

Document Number: EDS-18-109
Revision: 2
Issued On: 10/01/2018

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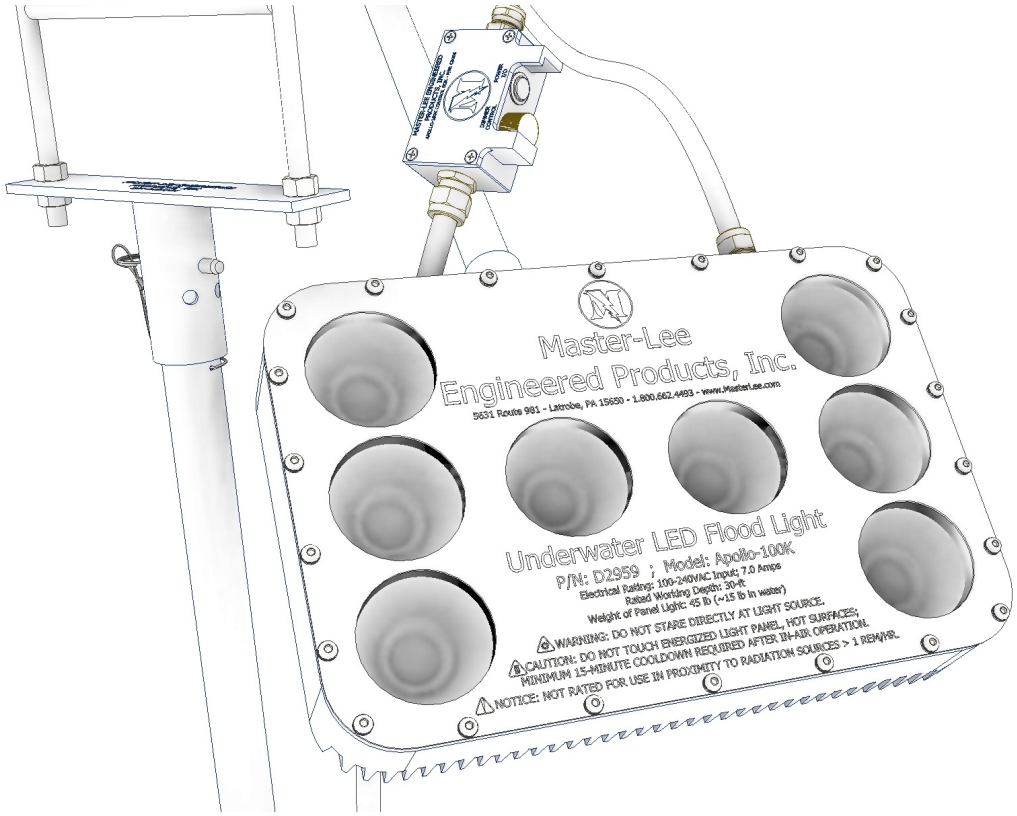

APOLLO-100K: LED FLOODLIGHT

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IMPORTANT:
Read Before Using

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1. SAFETY

⚠WARNING ”READ AND UNDERSTAND ALL INSTRUCTIONS” – Failure to follow the SAFETY RULES listed below and other safety precautions, may result in serious personal injury.

Work Area Safety

- **Do not operate light in explosive atmospheres, such as in the presence of flammable liquids, gases or dust.** Excessive heat from electrical sources may ignite dust or fumes.
- **Do not store or operate around rotating/moving equipment.** The electrical cord may become entangled in rotating equipment or severed by moving parts which may cause electrical shock to nearby personnel.
- **Do not handle the light while it’s operating in open-air.** Excessive heat generated in open-air operation may put personnel at risk of burns if handled.

Electrical Safety

- **Before plugging in the light, be certain the outlet voltage supplied is compatible with the voltage identified on the name plate.** Incompatible outlet voltage may result in serious hazards and/or damage to the equipment.
- **Do not expose the Dimmer Control Box to wet environments.** Water entering the Dimmer Control Box will increase the risk of electric shock.
- **Never use the cord of the light or Dimmer Control Box to carry or support the light. Keep cord away from heat, oil, sharp edges or moving parts.** Damaged cords increase the risk of electric shock.

Personal Safety

- **Do not look directly at the source of light while it is energized.** Temporary or permanent vision impairment may occur as a result.
- **Be sure the dimmer knob is turned to the full “CCW” position before plugging into an electrical outlet or connecting the light cord.** Personal injury, such as vision impairment, may occur if the light is energized in full power in proximity to personnel.
- **Check that all cord connections are tight and secure.** Loose or partial electrical connections may increase the risk of electric shock and/or damage to the components.
- **Do not store anything on top of the Dimmer Control Box or light panel.** Placing items on top of the Dimmer Control Box or light panel obstructs the view of warning and operating information and may cause damage to the component.

SAVE THESE INSTRUCTIONS!

⚠WARNING ”READ ALL INSTRUCTIONS” – Failure to follow the SAFETY RULES listed below and other safety precautions, may result in serious personal injury.

Operation and Care

- **Ensure the cover of the light panel is tightly fastened.** If loose, water may enter the enclosure and cause damage to the lighting components. *These are factory torqued to 40 in-lb.*
- **Ensure all cord connectors are free of moisture and are clean before making connections.** Dirt or moisture may cause the light to malfunction and/or may decrease the life expectancy of the components.
- **Handle, package, and use all components with care.** The lens of the light panel is made of an impact-resistant plastic but can fracture if struck with excessive force causing a hazard and/or Foreign Material risk.
- **Do not position the light panel in close proximity to irradiated fuel assemblies OR sources of extremely high radiation dose rates.** Temporary and/or permanent damage to the electronic components may occur, reducing performance of the light or rendering it inoperable.

Service

⚠WARNING Disconnect plug from power source before performing any assembly, adjustment or repair to avoid possible injury.

- **Service and/or repair must be performed only by Master-Lee personnel with the exception of lens replacement.** Service or maintenance performed by unqualified personnel may result in incorrect reassembly which could cause serious hazard.
- **Do not remove the cover of the Dimmer Control Box.** Removal of the cover increases the risk of damage to internal components and electrical shock to personnel.
- **Lens and O-Ring shall be replaced with the manufacturer specified parts as outlined in this document.** Failure to use the specified parts may lead to product failure.
- **Decontamination or cleaning of the lighting assembly shall be performed with care.** Hand-washing with wet rags or a mild cleaning solution may be performed on the lighting assembly and cord. Use of pressure applied water may damage the components.

SAVE THESE INSTRUCTIONS!

2. ELECTRICAL REQUIREMENTS

- Connect the GFCI plug (standard unless replaced by end user) to a 120-Volt branch circuit with a minimum breaker rating of 15-Amps.
- The Apollo-100K is provided with a cord having a 3-prong, grounded plug. Only plug the cord into outlets also having a 3-prong outlet of the same size.
- Replace damaged cords immediately. Use of damaged cords can shock, burn or electrocute.
- If an extension cord is necessary, a cord with adequate size conductors should be used to prevent excessive voltage drop, loss of power or overheating. The table below shows the correct size to use depending on cord length.

Recommended Size of Extension Cord

Cord Length (ft)	Cord Size in A.W.G
25	18
50	16
100	12

3. INSPECTION

- **Inspect light panel and lens for water infiltration and/or damage.** Failure to replace the lens, if visibly damaged or discolored, may result in breakage, poor performance, or water leaks. The lens should be completely transparent. Discoloration of the lens may indicate embrittlement due to excessive radiation exposure.
- **Inspect all bracket and lens cover fasteners for signs of degradation, damage, or wear.** Failure to replace damaged fasteners may result in electrical and/or mechanical failure.
- **Inspect all mounting masts and connecting pins for signs of degradation, damage, or wear.** Failure to replace damaged mounting/support components may result in damage or personnel injury.
- **Inspect electrical cables for cuts, wear, fretting, kinks, or any visible signs of degradation.** Use of damaged electrical cables may increase the risk of electrical shock.
- **Inspect components for cleanliness.** Dirt, oil, or chemicals may impair performance and longevity of the components.

4. OPERATION INSTRUCTIONS

⚠WARNING Injury to personnel may occur from looking directly at the energized light source or from physically touching the light body, which may be hot.

IMPORTANT INFORMATION:
The Apollo-100K light panel is equipped with an automatic thermal regulation control circuit which protects the components from overheating and damage. Water is the ideal coolant to permit the light panel to operate continuously at 100% power. When operated in open air, the Apollo-100K will slowly reduce output power to maintain safe operating temperatures. After extended use in open air the output level will be at approximately 60% power.

4.1. Instructions for turning ON the light panel

4.1.1. Verify the Dimmer Control knob is fully turned to the "CCW" position.
4.1.2. Verify the light panel is properly and safely positioned (i.e. away from personnel, combustible materials, etc.) and is hanging freely from the mounting bail.
4.1.3. Plug the power cord into a properly rated electrical outlet.
4.1.4. Depress the Power "I/O" switch.
4.1.5. Slowly turn the Dimmer Control knob "CW" to the desired light level.
4.1.6. IF the light does not turn on, THEN turn the Dimmer Control knob to the "CCW" position, depress the "RESET" button of the GFCI plug and slowly turn the Dimmer Control knob "CW" to the desired light level.

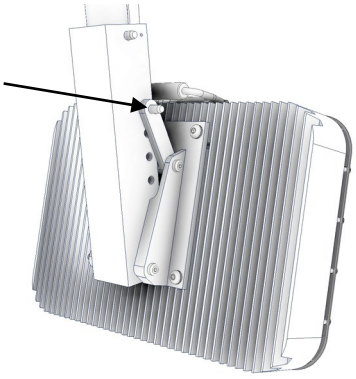
⚠WARNING Injury to personnel may occur IF the energized panel is touched while operating. Allow 15 minutes for the light panel to cool down prior to handling.

4.2. Instructions for turning OFF the light panel

4.2.1. Depress the Power "I/O" switch.
4.2.2. Verify the panel is not emitting light.
4.2.3. Unplug the power cord from the electrical outlet.
4.2.4. Allow approximately 15 minutes for the light panel to cool down prior to handling.

4.3. Instructions for adjusting the light panel angle (Vertical)

4.3.1. Support the light panel and remove the ball-detent pin by pulling on the handle.
4.3.2. Tilt the light panel to the desired position (the lowest positioning hole is ideal for illumination of large, underwater areas).
4.3.3. Insert the ball-detent pin through the desired positioning hole and verify the pin protrudes from the opposite side.



4.4. Instructions for adjusting the light panel angle (Horizontal)

4.4.1. Remove the ball-detent pin by pulling on the handle.
4.4.2. Rotate the light panel and mast to the desired position (the light can rotate 30-degrees in either direction).
4.4.3. Insert the ball-detent pin through the desired positioning hole and verify the pin protrudes from the opposite side.

5. LENS & O-RING REPLACEMENT (OPTIONAL KIT, P/N: C3277)

⚠WARNING Power cord must be disconnected from an electrical source prior to performing service. Failure to remove electrical potential to the light panel will increase the risk of electric shock.

5.1. Remove the twenty-two (22) ¼”-20 socket head cap screws and Nordlock washers from the light panel cover.
5.2. Remove the stainless steel light panel cover.
5.3. Remove the lens.
5.4. Remove the O-ring.
5.5. Clean and inspect the O-ring groove for signs of degradation, debris, damage, etc.
5.6. Lightly apply Molykote 111 to the new O-ring.
5.7. Install the O-ring into the groove ensuring it does not twist or kink.
5.8. Clean and inspect the lens (verify free of cracks, scratches, etc.).
5.9. Install the lens and stainless steel light panel cover, aligning with the mount holes.
5.10. Install the twenty-two (22) ¼”-20 socket head cap screws and Nordlock washers and **torque to 40 in-lb**.

6. PARTS LIST

⚠WARNING Failure to use replacement parts as identified herein or as recommended by the manufacturer may result in reduced performance and/or the potential risk of hazard or injury to personnel.

Part No.	*Description*	*Provided w/ System*	*Quantity*
D2960	**Apollo-100K Light Panel with:** - **Mounting Bracket w/ pins** - **Pole Adapter** - **Positioning Linkage Arm** - **15’ power connect cord**	**Yes**	**1**
C3056	**Dimmer Control Box with:** - **10’ power cord w/ GFCI plug**	**Yes**	**1**
D2968	**Lifting/Mounting Bail**	**Yes**	**1**
D3042	**4’ Mast Sections w/ pins**	**Yes**	**2**
C3277	**Replacement Lens Kit (1 Lens, 1 o-ring)**	**No**	**n/a**

7. TECHNICAL SPECIFICATIONS

Lighting/Electrical	
Operating Voltage	100~240 VAC, 50~60Hz
Current @ 100% Power	Up to 7.0 Amps @110VAC
Light Output	Up to 110,000 Lumens
Light Color Temperature	5000K (white light)
LED Life	50,000 hours (>70% lumen output)
Radiation tolerance	Not approved for high-radiation exposure (See Helios product line)
Waterproof depth rating	IP68; 30-ft
Dimming	100-10% manual; 100-50% auto (temperature based)
Light Panel positions	0-45 degrees (Tilt) 30-0-30 degrees (Pan)
Operating temperature (°F)	165 (max. in-air); ~135 (in water)
Power Factor %	98
LED Efficacy (@ 85C)	159 lumens/watt
LED Flux (@85C)	100,300 lumens
FME Equipped	Yes
Protection	GFCI; Thermal Overload; Short Circuit; Over Voltage
Warranty	2-Year; Limited; Parts replacement
Cable Material	Rubber, Polyethylene; Water resistant

Physical – Panel Light	
Part Number	D2960
Length	18 in
Height	12 in
Width	3 in
Weight	36 lb
Cable Length	15 ft
Material	MIL-A-8625-Type III, Hard coat anodized aluminum; Stainless steel protective lens cover
Lens Material	Polycarbonate

Physical – Panel Mounting Bracket	
Length	6 in
Width	4 in
Height	12 in
Weight	5 lb
Material	MIL-A-8625-Type III, Hard coat anodized aluminum