

EALS Components

Lighting Components

|  | Qty |
|--|-----|
| Edge/Approach Light (45W, 6.6A lamp, clear lens) | 116 |
| Threshold/End Light (120W, lamp, red/green lens) | 33  |
| Taxiway Light (30W 6.6A lamp, blue lens)         | 40  |
| PAPI unit (two 200 watt lamps ea.)               | 5   |
| Strobe Master Unit (120/240VAC input)            | 3   |
| Strobe Slave Unit (120/240VAC input)             | 4   |
| DTG Marker Light (45 watt, 6.6A, PAR 38 lamp)    | 10  |
| Taxiway Reflector                                | 250 |
| Obstruction Light (two 6VDC batteries ea.)       | 10  |
| 45W Isolation Transformer                        | 163 |
| 100W Isolation Transformer                       | 33  |
| Series Circuit Adapter                           | 5   |
| Ballast Ring                                     | 192 |
| Stake  | 460 |

Power and Control Components

|   | Qty         |
|---|-------------|
| MEP-805A generator (30 kW, 240/416VAC, 60 Hz., diesel)  | 2           |
| Regulator (6.6A max. output, 208, 240, or 416VAC input) | 2           |
| Primary Control Panel                                   | 1           |
| Backup Control Panel                                    | 1           |
| Runway Cable  | 32,040 feet |
| Other needed cables                                     | 4,889 feet  |
| Ground Rod Sections ( 3 feet ea.)                       | 20          |
| Cable Protection  | 110 feet    |

Packaging Components

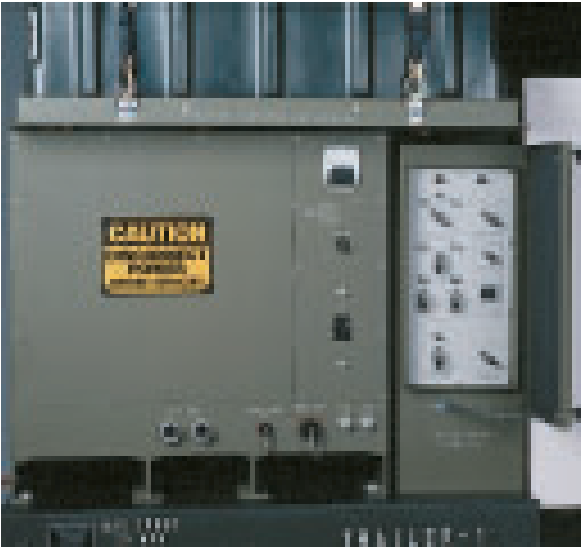
|                                  | Qty |
|----------------------------------|-----|
| Trailer                          | 6   |
| Cable Reel (with built in brake) | 3   |
| Random Access Container (RAC)    | 3   |
| PAPI unit Container              | 5   |
| Strobe Master Unit Container     | 3   |
| Strobe Slave Unit Container      | 4   |
| Obstruction Light Container      | 1   |
| Trailer Tarp                     | 6   |

Miscellaneous Components

|                     | Qty |
|---------------------|-----|
| Small Spares Kit    | 1   |
| Flashlight          | 2   |
| Miner's Lights      | 6   |
| Jack and Lug Wrench | 1   |
| Tool Kit            | 2   |



Trailer #3



EALS Regulator and Primary Control Panel

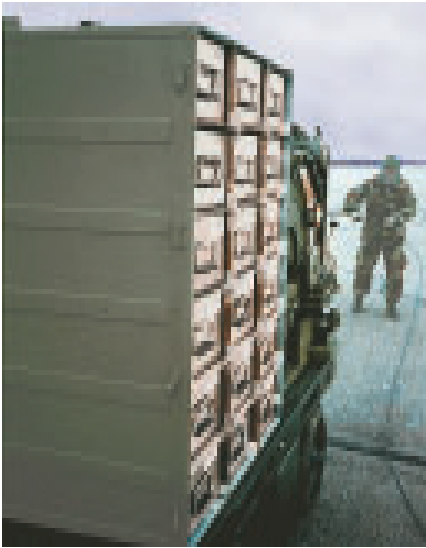
EALS

EMERGENCY AIRFIELD LIGHTING SYSTEM



A quickly installed complete emergency runway lighting system, that provides:

- runway edge lighting
- approach lighting
- threshold/end lighting
- taxiway lighting
- visual glide slope indication
- distance-to-go marker lighting
- and -
- obstruction lighting



The EALS has seen extensive field service all over the world including the United States mission in Saudi Arabia during Desert Storm as well as humanitarian missions in Somalia, Zaire, and Rwanda.

Because the EALS was developed for the Air Force as a contingency lighting system, mobility, installation time, and durability under adverse handling and operating environments were some of the key issues considered during the design of the system. Because of this emphasis, most of the EALS components were developed to more stringent specifications than similar FAA components designed for permanent installations..

The resulting design is very mobile and easy to install. Six people can install a complete system in less than three hours. The entire system weighs under 30,000 lbs. and can fit on a 48 foot flatbed trailer or in three 463L pallet positions.

Not only is the EALS portable, it is also very flexible. It can be installed on just about any type of surface including sand, frozen earth, mud, ice, asphalt, and concrete. Also, the EALS can be installed even while wearing chemical defense gear or arctic weather clothing.

The EALS is totally self-contained and comes with everything needed to light an airfield with a runway up to 10,000 feet by 150 feet, including edge lights, approach lights, approach strobes, threshold/end lights, Precision Approach Path Indicators (PAPIs), taxiway lights and reflectors, Distance-To-Go (DTG) marker lights, obstruction lights, cabling, generators, regulators, and even spare parts, tools, and flashlights for nighttime installations.

Some of the key features and components of the EALS are detailed below:

Light Fixtures

The EALS comes with enough light fixtures to mark the edges, thresholds, and approaches of a runway up to 10,000 feet long by 150 feet wide. In addition, the EALS comes with 40 taxiway lights. All of the light fixtures are have omnidirectional glass lenses which are protected by a wire guard and use quartz-halogen lamps. Lights fixtures for marking the edges and approaches of the runway have clear lenses and use 45 watt lamps. Threshold/end lights have a split red and green lens and use 120 watt lamps. Taxiway lights have blue lenses and use 30 watt lamps. With the exception of the lenses and lamps, all components of one



*Trailer #1*



*Trailer #2*



*Trailer #3*



*EALS Strobe Master Unit and Container*

light fixtures type are interchangeable with the other light fixture types meaning that a taxiway light could easily be converted into a threshold/end light if desired. The light fixtures are interconnected with each other in a series circuit and are isolated from the high voltage of the circuit through an isolation transformer. All of the light fixtures are installed simply by setting them on the ground. In most cases, the weight of the fixture itself is enough to stabilize the fixture but ballast rings and stakes are provided with the EALS for additional stability where needed.

## Approach Strobes

The EALS includes enough equipment to install a strobe segment at each end of the runway. Each strobe segment consists of two strobe slave units and one strobe master unit. Each strobe slave unit contains a flash tube and a power supply housed in a weatherproof aluminum enclosure. The strobe slave unit receives its power and sequencing signals from the strobe master unit. Each master unit contains all of the components of a slave unit but also has the internal logic necessary to sequence the units. In addition, a strobe master unit can easily be configured to operate as a strobe slave unit if needed. The strobe master unit also decodes momentary power interruptions in the series circuit caused by the EALS control panel

and turns the entire segment on or off based on these power interruptions. The strobe master unit is interconnected with the rest of the lighting system series circuit. A series circuit adapter isolates the strobe master unit from the high voltage of the series circuit and also converts the constant current power supply of the series circuit into a 120/240 volt constant voltage supply for use in the strobe units.

## PAPI

In the EALS, visual glide slope indication is provided by a 2-box Precision Approach Path Indicator (PAPI) system at each end of the runway. The PAPI visually provides the pilot vertical glide path information including correct position and direction. The PAPI has adjusting knobs and an externally mounted tilt-switch for quickly setting the approach angle. Photocells are also provided which automatically switch the intensity of the PAPI from daytime to nighttime settings. The PAPI sits directly on the ground and can be secured on softer surfaces with stakes provided in the EALS. Like the strobe units, the PAPI is interconnected to the series circuit through a series circuit adapter.

## Regulator

The EALS comes with two air-cooled 20 kW regulators to provide a constant current power source for the EALS runway

lighting circuit. Only one of these regulators is needed to power the circuit, the other is provided as a backup. The regulator has three output current levels: high (6.6 amps), medium (5.5 amps) and low (4.8 amps) which control the intensity of the lights on the series circuit. The regulator is designed to accurately regulate the output current to within  $\pm 3\%$  and contain a “soft-start” feature which eliminates the need for special slow acting circuit breakers on the input power supply lines. Although the regulators are initially configured to be powered by the 416 volt input power supplied by the EALS generator, they can easily be configured to be powered by an existing 208 or 240 volt power grid. The regulator is designed to be operated from the EALS control panel but may also be operated manually if needed.

### Control Panels

The EALS includes a primary and a backup control panel. At any one time, only one of these control panels are connected to the system. Either control panel, when connected, can control the operation of the runway lights and the selection of “Low”, “Medium”, or “High” intensity as well as control the operation of the strobe units. In addition, the primary control panel can also control the starting and stopping of the gen-

erators as well as automatically or manually transfer the load from one generator to the other.

### Generators

Two United States Air Force 30kW MEP-805A diesel generators are included to provide input power for the EALS; one for primary power, the other serves as a standby. The 416 volt output of the generator powers the EALS regulator which in turn provides a constant current power source for the entire series circuit. The generators are equipped with remote start kits which allow the EALS primary control panel to remotely start the generator and automatically transfer the regulator load from the primary generator to the standby in the event of a failure.

### Other Components

As already mentioned, the EALS is a complete runway lighting system. Everything needed to install and operate the system comes with the EALS including the components listed above, cables, transformers, series circuit adapters, grounding equipment, taxiway reflectors, ballast rings, stakes, Distance-To-Go Marker lights, cable protection, tools, and more. At least one spare of all the major components is included in the EALS in addition to spare lenses, lamps, flash tubes, fuses, connectors, and cables.



*Trailer #4*



*Trailer #5*



*EALS PAPI Unit and Container*



*Trailer #6*

## EALS Components

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| Ground Rod Sections ( 3 feet ea.)                       | 20          |
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### Packaging Components Qty

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| Trailer                          | 6 |
| Cable Reel (with built in brake) | 3 |
| Random Access Container (RAC)    | 3 |
| PAPI unit Container              | 5 |
| Strobe Master Unit Container     | 3 |
| Strobe Slave Unit Container      | 4 |
| Obstruction Light Container      | 1 |
| Trailer Tarp                     | 6 |

### Miscellaneous Components Qty

|                     |   |
|---------------------|---|
| Small Spares Kit    | 1 |
| Flashlight          | 2 |
| Miner's Lights      | 6 |
| Jack and Lug Wrench | 1 |
| Tool Kit            | 2 |



*Trailer #3*



*EALS Regulator and Primary Control Panel*

For More Information Contact:

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