

MIL-L-52190C(ME)  
17 March 1983  
SUPERSEDING  
MIL-L-52190B(ME)  
17 January 1972

MILITARY SPECIFICATION

LIGHTS, MARKER, GROUND OBSTRUCTION:

EMERGENCY, ROADWAY AND AIRFIELD

This specification is approved for use by the Mobility Equipment Research and Development Command, Department of the Army, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers electric lights for emergency use on roadways and airfields. The lights are self-contained, having five dry cells of the Leclanche type and a glass vial of electrolyte.

1.2 Classification. The lights shall be of the following classes, as specified (see 6.2):

- Class 1 - Roadway light.
- Class 2 - Airfield light.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

QQ-A-250/11

- Aluminum Alloy 6061, Plate and Sheet.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Mobility Equipment Research and Development Command, ATTN: DRDME-DS, Fort Belvoir, VA 22060 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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- |           |   |
|-----------|---|
| PPP-B-566 | - Boxes, Folding, Paperboard.                 |
| PPP-B-601 | - Boxes, Wood, Cleated-Plywood.               |
| PPP-B-636 | - Box, Fiberboard.                            |
| PPP-B-640 | - Boxes, Fiberboard, Corrugated, Triple-Wall. |

## MILITARY

- |             |  |
|-------------|--|
| MIL-P-116   | - Preservation, Methods of.  |
| MIL-T-704   | - Treatment and Painting of Materiel.                                |
| MIL-L-10287 | - Lacquer, Cellulose Nitrate for Identification of Small Ammunition. |
| MIL-C-46168 | - Coating, Aliphatic Polyurethane, Chemical Agent Resistant.         |

## STANDARDS

## FEDERAL

- |           |                                  |
|-----------|----------------------------------|
| FED-STD-3 | - Colors, Aeronautical Lighting. |
|-----------|----------------------------------|

## MILITARY

- |              |  |
|--------------|--|
| MIL-STD-105  | - Sampling Procedures and Tables for Inspection by Attributes. |
| MIL-STD-129  | - Marking for Shipment and Storage.                            |
| MIL-STD-130  | - Identification Marking of U.S. Military Property.            |
| MIL-STD-1188 | - Commercial Packaging of Supplies and Equipment.              |

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

## DRAWINGS

## ME

- |              |                                       |
|--------------|---------------------------------------|
| TA13217E2130 | - Light, Marker, Emergency, Airfield. |
| TA13217E2140 | - Light, Marker, Emergency, Roadway.  |

(Copies of specifications, standards, and drawings required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting officer.)

## 3. REQUIREMENTS

3.1 Description. The lights shall be as shown on TA13217E2130 (airfield) and TA13217E2140 (roadway) and as specified herein.

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3.1.1 Drawings. The drawings forming a part of this specification are engineering design drawings. No deviation from the prescribed dimensions or tolerances is permissible without prior approval of the contracting officer. Where tolerances could cumulatively result in incorrect fits, the contractor shall provide tolerances within those prescribed on the drawings to insure correct fit, assembly, and operation of the light. Any data (e.g. shop drawings, layouts, flow sheets, processing procedures, etc.) prepared by the contractor or obtained from a vendor to support fabrication and manufacture of the production item shall be made available, upon request, for inspection by the contracting officer or his designated representative.

3.2 First article (preproduction model). The contractor shall furnish one light for examination and testing within the time frame specified (see 6.2), to prove prior to starting production that his production methods will produce lights that comply with the requirements of this specification. Examination and tests shall be as specified in Section 4 and shall be subject to surveillance and approval by the Government (see 6.3).

3.3 Material. Material shall be as specified herein and as shown on the applicable drawings. Materials not specified shall be selected by the contractor and shall be subject to all the provisions of this specification.

3.4 Lamp. The lamp shall be a tungsten filament, 5.1 volt, 0.15-ampere, G-4-1/2, C-2R filament, miniature, screw-base type, trade No. 502. The lamp shall be screwed tightly into the lamp socket and shall be soldered to the socket shell to prevent loosening.

3.5 Lamp socket. The lamp socket shall be insulated with a paper or fiber insulating sleeve.

3.6 Activation. The light shall be activated by shattering the glass vial of electrolyte in the light housing. The lamp shall reach full lighting intensity within 2 minutes after the vial is shattered.

3.7 Identification marking. The lights shall be identified in accordance with MIL-STD-130. In addition, the lights shall be marked with the following information:

- a. Date of manufacture.
- b. Approximate shelf life.
- c. Operating instructions.

3.8 Treatment and painting. The portions of the lights and their components and parts normally painted shall be cleaned, treated, and painted in accordance with MIL-T-704, Type A, with the top coat conforming to MIL-C-46168, color camouflage forest green.

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3.9 Class 1, roadway lights.

3.9.1 Reflector. The reflector shall be fabricated from aluminum alloy conforming to QQ-A-250/11, temper 0 (annealed). The reflector shall be polished and shall be protected by one coat of clear lacquer conforming to MIL-L-10287, Type II.

3.9.2 Blackout hood. The blackout hood shall be fabricated of black calendered paperboard. The paperboard stock shall be not less than 0.016 inch thick, 252 pounds weight for 500 sheets 25 by 40 inches. The paperboard shall be free from ground wood.

3.9.3 Plastic panes. The color of the plastic panes shall be aviation red conforming to FED-STD-3.

3.9.4 Light intensity. When tested as specified in 4.5.2.2, the class 1 light, equipped with red panes, shall emit not less than 3.5 candlepower after 1 hour of operation and not less than 0.5 candlepower after 12 hours of operations.

3.10 Class 2, airfield light.

3.10.1 Glass dome. The color of the glass dome shall be aviation red, aviation yellow, aviation green, or aviation white conforming to FED-STD-3 as specified.

3.10.2 Light intensity. The light equipped with an aviation white glass dome shall emit, at the end of time periods shown, not less than the following candlepower measured in a horizontal plane:

<u>Time period</u>	<u>Candlepower</u>
10 minutes after activation	0.7
1 hour after activation	0.6
5 hours after activation	0.15
12 hours after activation	0.023

3.11 Workmanship. The light shall be free from defects such as incomplete solder joints, blistered or peeling paint, rust, malformed case seams, and any other defects that could impair its operation or serviceability.

## 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

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4.1.1 Acceptability criteria. Marker lights which conform to all requirements in Section 3 and 5 of this specification and pass all applicable examinations and tests in Section 4 of this specification will be considered acceptable by the Government.

4.1.2 Component and material inspection. The contractor is responsible for insuring that components and materials used are manufactured, examined, and tested in accordance with referenced specifications, standards, and drawings, as applicable.

4.1.3 Disassembly inspection. Failure of any examination or test by the preproduction model shall be cause for disassembly, in the presence of a Government representative, of the preproduction model to the extent necessary to determine the cause of the failure. Each disassembled part shall be examined in detail for compliance with this specification and referenced drawings in regard to materials, dimensions, tolerances, and workmanship. Parts not complying with such requirements shall be rejected and shall be cause for rejection of the preproduction model. Reassembly with replacement parts and retesting shall be the responsibility of the contractor.

4.2 Classification of inspection. Inspection shall be classified as follows:

- a. Preproduction inspection (see 4.3).
- b. Quality conformance inspection (see 4.4).
- c. Inspection of packaging (see 4.6).

4.3 Preproduction inspection.

4.3.1 Examination. The preproduction light shall be examined for the defects specified in 4.5.1. Presence of one or more defects shall be cause for rejection.

4.3.2 Tests. The preproduction light shall be tested as specified in 4.5.2.1 through 4.5.2.3. Failure of any test shall be cause for performing the inspection specified in 4.1.3.

4.4 Quality conformance inspection.

4.4.1 Sampling. Sampling for examination and test shall be in accordance with MIL-STD-105, Inspection Level S-1.

4.4.2 Examination. Samples selected in accordance with 4.4.1 shall be examined for the defects specified in 4.5.1. AQL shall be 2.5 percent defective for major defects and 4.0 percent defective for minor defects.

4.4.3 Tests. Samples selected in accordance with 4.4.1 shall be tested as specified in 4.5.2. AQL shall be 2.5 percent defective.

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4.5 Inspection procedure.

4.5.1 Examination. The light shall be examined for the following defects:

Major

101. Glass dome cracked or missing on class 2 light. Plastic pane cracked or missing on class 1 light.
102. Blackout hood on class 1 light will not open or close.
103. Broken, damaged, or leaking container.
104. Color of dome or plastic pane not as specified.

Minor

201. Dimensions not in accordance with drawings.
202. Incorrect marking.
203. Dents or irregularities in sides of container.
204. Material not as specified.
205. Workmanship not as specified.

4.5.2 Tests.

4.5.2.1 Lamp activation. Activate the lamp by forceably striking the bottom of the light housing on a flat solid surface. Within 2 minutes after activation, a class 1 light should register not less than 3.5 candlepower, and a class 2 light not less than 0.7 candlepower. Light intensity measurement less than those stated shall constitute failure of this test.

4.5.2.2. Light intensity, class 1. After successful completion of the test specified in 4.5.2.1, test the light for peak candlepower after 1 hour of operation and again after 12 hours of operation. Candlepower shall be measured with a light meter, and the measurements shall be taken perpendicular to the plane of the panes. Peak candlepower reading shall be obtained by moving the photocell above and below the axis of the light to locate the point of maximum candlepower. Measurements shall be taken not more than 8 inches and not less than 6 inches from the light source. Nonconformance to 3.9.4 shall constitute failure of this test.

4.5.2.3 Light intensity, class 2. Activate the class 2 light and permit it to burn for 12 hours. Measure the candlepower of the light with a light meter 10 minutes after activation, 1 hour after activation, 5 hours after activation, and 12 hours after activation. Candlepower shall be measured with a light meter and measurements shall be taken perpendicular to the plane of the panes. Peak candlepower reading shall be obtained by moving the photocell above and below the axis of the light to locate the point of maximum candlepower. Measurements shall be not more than 8 inches and not less than 6 inches from the light source. Nonconformance to 3.10.2 shall constitute failure of this test.

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4.6 Inspection of packaging.4.6.1 Quality conformance inspection of pack.

4.6.1.1 Unit of product. For the purpose of inspection, a completed pack prepared for shipment shall be considered a unit of product.

4.6.1.2 Sampling. Sampling for examination shall be in accordance with MIL-STD-105.

4.6.1.3 Examination. Samples selected in accordance with 4.6.1.2 shall be examined for the following defects. AQL shall be 2.5 percent defective.

- 105. Materials, methods, and containers not as specified for level A or B. Each incorrect material, method, or container shall be considered one defect.
- 106. Lights not individually preserved as specified for level A.
- 107. Gross weight exceeds 200 pounds for level A.
- 108. Preservation and packing not in accordance with the referenced document as specified for commercial.
- 109. Gross weight or size exceeds the box limitation for level B.
- 110. Marking missing, illegible, incorrect, or incomplete for level A, B or commercial.

## 5. PACKAGING

5.1 Preservation. Preservation shall be level A or commercial as specified (see 6.2).

5.1.1 Level A. Each light shall be individually preserved in accordance with MIL-P-116, Method IC-2, using a close-fitting commercial fiberboard box or a box conforming to PPP-B-566 or PPP-B-636, Type CF, Class Domestic, Variety SW, Grade 125. The contents shall be cushioned within the box in a manner to prevent movement or damage.

5.1.2 Commercial. The lights shall be preserved in accordance with MIL-STD-1188.

5.2 Packing. Packing shall be level A, B, or commercial as specified (see 6.2).

5.2.1 Level A. The lights, preserved as specified in 5.1, shall be packed together in a close-fitting box conforming to PPP-B-601, Overseas Type, style optional. The gross weight of each box shall not exceed 200 pounds. The box shall be closed and strapped in accordance with the appendix to the box specification.

5.2.2 Level B. The lights, preserved as specified in 5.1, shall be packed together in a close-fitting box conforming to PPP-B-640, Class 2, Style

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optional; or PPP-B-636, V3c. The gross weight or size of each box shall not exceed the limitations of the applicable box specification. Box closure and strapping shall be in accordance with the appendix to the applicable box specification.

5.2.3 Commercial. The lights shall be packed in accordance with MIL-STD-1188.

5.3 Marking.

5.3.1 Military. Marking for military levels of protection (level A or B) shall be in accordance with MIL-STD-129.

5.3.2 Commercial. Marking for commercial packaging shall be in accordance with MIL-STD-1188.

6. NOTES

6.1 Intended use. Class 1 lights are intended primarily for use as emergency roadway markers or signals. Class 2 lights are intended primarily to be used for emergency airfield or seadrome lighting and for marking areas in night airborne operations.

6.2 Ordering data. Procurement documents should specify the following:

- a. Title, number, and date of this specification.
- b. Class required (see 1.2).
- c. Date of DoDISS applicable and exceptions thereto (see 2.1.1).
- d. Time frame required for submission of preproduction model (see 3.2).
- e. Color of glass domes required (see 3.10.1).
- f. Degree of preservation and degree of packing required (see 5.1 and 5.2).

6.3 Preproduction model. Any changes or deviations of production lights from the approved preproduction model during production will be subject to the approval of the contracting officer. Approval of the preproduction model will not relieve the contractor of his obligation to furnish lights conforming to this specification.

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