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SUPERSEDING
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MILITARY SPECIFICATION

LIGHT, MARKER, AIRPORT APPROACH, HIGH INTENSITY, TYPE MB-2

This specification has been approved by the Department of the Air Force and by the Naval Air Systems Command.

1. SCOPE

1.1 This specification covers one type of high intensity, airport approach, marker light, designated Type MB-2.

2. APPLICABLE DOCUMENTS

*2.1 The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

Federal

QQ-Z-325	Zinc Coating, Electrodeposited, Requirements for
PPP-B-601	Boxes, Wood, Cleated-Plywood
PPP-B-636	Box, Fiberboard
PPP-C-843	Cushioning Material, Cellulosic

Military

MIL-P-116	Preservation, Methods of
MIL-C-5136	Cable, Power, Electrical, Polychloroprene Sheathed, Buna Compound Insulated
MIL-C-7989	Covers, Light-Transmitting, for Aeronautical Lights, General Specification for
MIL-P-17667	Paper, Wrapping, Chemically Neutral (Non-Corrosive)
MIL-C-250050	Colors, Aeronautical Lights and Lighting Equipment, General Requirements for

STANDARDS

Federal

595	Colors

Military

MIL-STD-100	Engineering Drawing Practices
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-143	Standards and Specifications, Order of Precedence for the Selection of
MIL-STD-831	Test Reports, Preparation of
MIL-STD-889	Dissimilar Metals
MS24348	Lamp, Incandescent, PAR-56 Bulb, Airport Approach
MS24489	Filter, Marker Light, Airport Approach, Glass

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

*2.2 Other publications. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on date of invitation for bids or request for proposal shall apply:

Federal Aviation Agency

Specifications

LL-823	Plug and Receptacle Cable Connectors
FAA-982	PAR-56 Lampholder

Drawings

D-4761-1	PAR-56 Lamp Holder, General Assembly
D-4761-2	PAR-56 Lamp Holder, Parts Details
D-4761-3	PAR-56 Lamp Holder, Parts Details

(Copies of FAA documents may be obtained from the Federal Aviation Agency, Washington, D. C. 20590.)

3. REQUIREMENTS

*3.1 Preproduction. This specification makes provisions for preproduction testing.

3.2 Selection of specifications and standards. Specifications and standards for necessary commodities and service not specified herein shall be selected in accordance with MIL-STD-143.

3.2.1 Use of commercial parts. Bolts, nuts, washers, cotter pins, lock rings and similar fastening devices used for assembly, may be selected from commercial sources, provided military or other standard parts area not specified by this specification or associated standards. If such commercial parts are used, they shall possess suitable properties and shall be replaceable by military standard parts without alteration, and provided the corresponding military standard part numbers are referenced in the parts list and, if practicable, on the contractor's drawings.

3.3 Materials

3.3.1 Fungus-proof materials. Materials that are nutrients for fungi shall not be used where it is practicable to avoid them. When used and not hermetically sealed, they shall be treated with a fungicidal agent acceptable to the procuring activity. However,if they will be used in a hermetically sealed enclosure, fungicidal treatment will not be necessary.

*3.3.2 Metals. Metals shall be of the corrosion-resistant type or treated to resist corrosion caused by fuels, salt spray, or atmospheric conditions as may be encountered in storage or normal service. The use of dissimilar metals shall be avoided whenever practicable. Dissimilar metals are defined in MIL-STD-889.

3.3.3 Bolts, screws, and nuts. Bolts, screws, and nuts shall be of corrosion-resistant metal or shall be treated to prevent corrosion of seizing which would cause difficulty in removal for servicing and maintenance.

*3.4 Design and construction. The light shall be designed and constructed in accordance with Drawings D-4761-1, D-4761-2, D-4761-3, and FAA-982, with the exceptions and additions specified herein.

3.4.1 Optional design. Slightly different details of design other than those specified may be permitted, provided the difference does not affect the performance or interchangeability of the lights, and provided the design change is approved by the procuring activity.

3.4.2 Design conditions. The light shall be designed for continuous outdoor operation under all weather conditions. It shall be so designed and constructed that no parts will work loose in service. It shall be constructed to withstand the strains, jars, vibrations and other conditions incident to shipping, storage, installation, and service.

3.4.3 Adjustment and repairs. The light shall be so constructed that adjustments and repairs can be easily made by personnel of operating units and overhaul bases without the use of special tools.

3.5 Performance.

3.5.1 Assembly. When tested as specified in 4.5.2, the light shall be properly assembled and shall conform to the design and construction specified.

3.5.2 Operation. There shall be no evidence of smoking, charring, sofgtening or other damage to any component when tested as specified in 4.5.3.

3.5.3. Lamp position. When tested as specified in 4.5.4, the aiming of the light shall correspond to the markings on the protractor scale.

3.6 Components. The major components of the light shall consist of the housing shell, ring, support and holder, terminal block, clips, connectors, and cord.

3.6.1 Lamp. The light shall be designed for use with a FAR-56, 500-watt, 30-amp, two-contact, mogul end-prong base, sealed beam lamp in accordance with MS24348. There shall be approximately 1-inch space between the lamp and the filter. Unless otherwise specified, lamps shall not be furnished with the light (see 6.2).

3.6.1.1 Lamp-holding clips. At least three 18-8 stainless steel pressure clips shall be provided to hold the lamp to the index ring. The clips shall be in accordance with Drawing D-4761-3. They shall be so constructed that they will not cut into the lamp and will permit the lamp to be readily clipped and held in place. Screws, nuts, and washers shall be furnished with the clips.

*3.6.2 Filters. The filters shall be in accordance with MIL-C-7989 and MS24489 and shall be capable of being mounted as specified in FAA-982. Unless otherwise specified, the light shall not be provided with a filter (see 6.2).

*3.6.2.1 Filter color. When filters are required, they shall be provided in aviation colors specified, conforming to type I of MIL-C-25050 and grade in accordance with MS24489 (see 6.2).

3.6.2.2 Filter clips and screws. The clips and screws for holding the filter shall be supplied with the light.

3.6.3 Mounting hardware. The screws, nuts, bolts, washers, etc., used for assembly of the adjustable mount and for connecting it to the shell shall be of 18-8 stainless steel.

CCB NOTE: For the remainer of 3.6.3 and beginning of 3.6.4, see Application Note below.

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│ SPECIAL CCB Application Note:                                │
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block of each light. The length of the cord with plug shall be 72 +/- 2 inches. The cord shall be threaded through the mounting support so that the cord and its connector are inside the mounting support.

3.6.4.1 Cord plug. The plug shall be two pole, 600V, 20 amp in accordance with type Ia of L-823 and shall be molded to the lower end of the cord.

3.6.5 Squeeze connectors. The squeese connectors shall be in accordance with, or equal to, the connector specified on Drawing D4761-1. Each connector shall be complete with aluminum or steel locknut. If steel locknut is furnished, it shall be zinc plated 0.0005 inch thick in accordance with type II, class 2 of QQ-Z-325.

3.6.6 Terminal block. The terminal block shall conform to the terminal block requirements specified in FAA-982.

*3.7 Part numbering of interchangeable parts. All partg having the same manufacturer's part number shall be functionally and dimensionally interchangeable. The item identification and part number requirements of MIL-STD-100 shall govern the manufacturer's part numbers and changes thereto.

3.8 Finish. All aluminum parts, except the inside of the support, shall be finished with one base coat and one finish coat of orange paint, color 12197, conforming to Sgtandard 595. All paints and finishes used in the light shall be suitable for the operating temperatures involved and shall not cause parts of the assembly to adhere to each other.

3.9 Identification of product. Requipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

3.10 Workmanship. The light, including all parts and accessories, shall be fabricated and finished in a thoroughly workmanlike manner. Particular attention shall be given to freedom from blemishes and defects, marking or parts and assemblies, thoroughness of soldering, cementing, welding, brazing, painting, wiring, and riveting, alignment of parts, and tightness of assembled screws and nuts.

3.11 Cleaning. The light shall be thoroughly cleaned, and loose, spattered or excess solder, metal chips, and other foreign material removed during and after final assembly.

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 supplier 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.

4.2 Classification of tests. The inspection and testing of the light shall be classified as follows:

*a. Preproduction testing..... See 4.3

b. Quality conformance tests..... See 4.4

*4.3.1 Test sample. The test sample shall consist of one light, one lamp, and one filter representative of the production equipment.

*4.3.2 Test report. After completion of the preproduction tests, a test report shall be prepared in accordance with MIL-STD-831 and three complete copies of the report furnished to the procuring activity.

*4.3.3 Preproduction tests. The preproduction tests shall consist of all tests described under 4.5.

4.4 Quality conformance tests. For the purpose of quality conformance testing, a lot shall consist of all lights submitted for acceptance at one time. Quality conformance tests shall consist of group I and II tests.

4.4.1 Group I tests. Sampling for group I testing shall be conducted in accordance with MIL-STD-105, inspection level II. The AQL shall be 1.0. This test shall consist of the examination of product as specified in 4.5.1.

4.4.2 Group II tests. Sampling for group II testing shall be conducted in accordance with MIL-STD-105, inspection level S-3. The AQL shall be 1.0. These tests shall consist of the assembly test (4.5.2) and the operation test (4.5.3).

4.5 Test methods.

4.5.1 Examination of product. Each light shall be examined to determine conformance in this specification with respect to materials, workmanship, and marking (see 3.3, 3.9, and 3.10).

4.5.2 Assembly. The light shall be tested with the specified lamp and filter to determine that the design and construction is satisfactory. When assembled, there shall be approximately a 1-inch space between the lamp and the filter.

*4.5.3 Operation. The light shall be operated for 24 hours at room temperature (approximately 25 deg. C) positioned so the beam is approximately horizontal. It shall be equipped with a 20-amp 500-watt lamp and green filter properly installed. Twenty amperes shall be supplied to the lamp for the 24-hour test period.

4.5.4 Lamp position. The light, complete with lamp and filter, shall be tested to ascertain that the lamp and filter which will be used are correctly positioned and aimed. The protractor scale on the light shall be checked to determine that the aiming of the light is as indicated on the scale.

*4.6 Inspection of preparation for delivery. The preservation, packaging, packing, and marking shall be inspected to determine conformance to the requirements of section 5 herein.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C, as specified (see 6.2).

5.1.1 Level A. The lights shall be individually packaged method III of MIL-P-116. Each light shall be wrapped with material conforming to MIL-P-17667, or equal, cushioned with material meeting the requirements of PPP-C-843, and placed in a fiberboard unit container conforming PPP-B-636.

5.1.2 Level C. The lights shall be packaged in a manner which will afford adequate protection against deterioration and physical damage during shipment from supply source to the first receiving activity for immediate use. This level may conform to the supplier’s commercial practice when such meets the requirements of this level.

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

5.2.1 Level A. The lights packaged as specified in 5.1 shall be packed in wood cleated-plywood shipping containers conforming to PPP-B-601, overseas type. Insofar as practicable, shipping containers shall be uniform in shape and size, of minimum cube and tare consistent with the protection required, and contain identical quantities. The gross weight of the shipping containers shall not exceed approximately 200 pounds. Container closure and strapping shall be in accordance with the appendix PPP-B-601.

5.2.2 Level B. Level B shall be the same as level A, except the shipping container shall conform to domestic type.

5.2.3 Level C. The lights packaged as specified in 5.1 shall be packed in a manner which affords adequate protection against damage during direct shipment from the supply source to the first receiving activity for immediate use. This level shall conform to applicable carrier rules and regulations and may be the supplier's commercial practice when such meets the requirements of this level.

5.3 Marking. In addition to any special marking required by the contract or order, interior packages and exterior shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The Type MB-2 lights are intended for use in airport approach lights.

6.2 Ordering data. Procurement documents should specify:

a. Title, number, and date of this specification

*b. When filters are to be provided and the color required (see 3.6.2 and 3.6.2.1)

c. Whether lamps are to be furnished with the lights (see 3.6.1)

d. Selection of applicable level of packaging and packing (see 5.1 and 5.2).

*6.3 The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This has been done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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