SAE Aerospace
An SAE International Group

AEROSPACE
STANDARD

SAE AS7768

Issued 1998-08
Reaffirmed 2011-05

Light, Desk, Aircraft

FSC 6230

NOTICE

This document has been taken directly from U.S. Military Specification MIL-L-7768B, Amendment 1 and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards. The initial release of this document is intended to replace MIL-L-7768B, Amendment 1. Any part numbers established by the original specification remain unchanged.

The original Military Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, and (b) the use of the existing government specification or standard format.

Under Department of Defense policies and procedures, any qualification requirements and associated qualified products lists are mandatory for DOD contracts. Any requirement relating to qualified products lists (QPL's) has not been adopted by SAE and is not part of this technical report.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AS7768

1. SCOPE:

1.1 Scope:

This specification covers the requirements for a light assembly for use on aircraft cabin desks.

1.2 Classification:

1.2.1 Type: The light assembly covered by this specification shall conform to the type shown on Table I.

2. APPLICABLE DOCUMENTS:

2.1 The following documents of the issue in effect on date of invitations for bids form a part of this specification to the extent specified herein.

SPECIFICATIONS

Federal

TT-E-527	Enamel, Alkyd, Lusterless
PPP-B-636	Boxes, Fiber

Military

MIL-P-116	Preservation-Packaging, Method of
MIL-I-631	Insulation, Electrical, Synthetic-Resin Composition, Nonrigid
MIL-W-5086/5	Wire, Polyvinyl Chloride Insulation, Polyvinyliedene Fluoride Jacket, Tin-Coated Copper Conductor, 600-Volt, 110°C
MIL-N-18307	Nomenclature and Identification for Electronic, Aeronautical and Aeronautical Support Equipment Including Ground Support Equipment

STANDARDS

Federal

FED-STD-595	Colors

Military

MIL-STD-105	Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-129	Marking for Shipment and Storage
MIL-STD-1186	Cushioning, Anchoring, Bracing, Blocking, and Waterproofing, with Appropriate Test Methods
MS25235	Lamp, Incandescent, Single-Contact Bayonet Candelabra Base, S-11 Bulb
MS35478	Lamp, Incandescent, S-8 Bulb, Single Contact, Bayonet Candelabra Base

2.1 (Continued):

(Copies of specifications, standards, drawings, and publications required by contractors 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.

ASTM B117-64 Method of Salt Spray (Fog) Testing

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103)

3. REQUIREMENTS:

3.1 First article:

When specified (see 6.2), the contractor shall furnish sample units for first article inspection and approval (see 4.3.1 and 6.2.1).

3.2 Materials:

Materials shall conform to the applicable specifications, MS standards, and Figure 1 as specified herein. Materials that are not covered to applicable documents shall be of the best commercial quality and suitable for the purpose intended.

3.2.1 Metals: Metals shall be of the corrosion-resisting type unless suitably protected to resist corrosion during normal service life.

3.3 Design and construction:

The design of the light assembly shall be substantially in accordance with the applicable standard or Figure 1. The dimensions specified thereon shall be maintained to permit interchangeability.

3.3.1 Lamp: The light assembly shall be designed to use MS35478-307, MS35478-307R, MS25235-311, or MS25235-R311. The MS35478-307 lamp shall be furnished by the manufacturer of the light assembly unless otherwise specified (see 6.2).

3.3.2 Wiring: The light assembly shall be wired substantially as shown on the applicable standard or Figure 1, using two size 20 wires in accordance with MIL-W-5086/5. A length of wire 2 feet ± 1 inch shall extend from the mounting flange. The wires shall be protected by type F, Grade A, form U tubing in accordance with MIL-I-631.

3.3.3 Insulation: The insulation of the transflux tubing shall be capable of withstanding without breakdown, 500 volts RMS alternating current.

3.3.4 Base mounting: The base mounting shall be so designed that the clamping screw passes through the clamp on the long extension arm and the ball on the base. The base shall be provided with an adjustment which will permit adjustment of the assembly in both the vertical and lateral positions on the base.

3.3.5 Ball joints: The ball joints in the assembly shall be coated with a layer of colloidal graphite. The graphite may be applied to the balls by means of a baked plastic vehicle or other method which will securely hold it on the surface of the balls.

3.3.6 Finish:

3.3.6.1 The reflector surface shall be finished in high-grade white enamel.

3.3.6.2 The light assembly, except the reflector surface, shall have a durable, dull-black finish conforming to TT-E-527, color number 37038 of FED-STD-595.

3.3.7 Weight: The weight of the light assembly shall not exceed 1.25 pounds.

3.4 Operating conditions:

The light assembly shall be designed and constructed for service under the following operating conditions.

a. Temperature. Temperature ranging from -55°C (-67°F) to 70°C (158°F).
b. Humidity. Humidity ranging to 100 percent.
c. Altitude. Pressure altitude ranging from sea level to 50,000 feet.
d. Sand and dust. Exposure to airborne sand particles encountered on deserts.
e. Salt spray. Exposure to atmosphere containing salt-laden moisture.
f. Vibration. Conditions of vibration incident to use in aircraft.

3.5 Cold resistance:

The light assembly shall not be damaged by exposure to temperatures of -65°C (-85°F).

3.6 Identification of Product:

3.6.1 Nameplate: A nameplate conforming to MIL-N-18307, and containing the following information, properly and legibly filled in, shall be securely attached to the outer surface of the reflector:

LIGHT, DESK
Military Part No.
Federal Stock Number
Manufacturer's Part No.
Contract or Order No.
Manufacturer's Name or Trademark
U.S. Property

3.6.2 Use of MIL designations: MIL designations shall not be applied to a product, nor referred to in correspondence or sales matter, until notification has been received that the product has been approved for aeronautical use.

3.7 Workmanship:

Workmanship shall be in accordance with high-grade manufacturing practice. Particular attention shall be given to freedom from blemishes, defects, burrs, and sharp edges; accuracy of dimensions, and marking of parts; thoroughness of soldering, wiring and painting; and alignment of parts and tightness of assembly screws and bolts.

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.

4.2 Classification of inspection:

The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.3)
b. Quality conformance inspection (see 4.4)

4.3 First article inspection:

First article inspection shall be performed after award of the contract on light assemblies representative of the production lot. First article inspection shall consist of all inspection procedures of this specification (see 4.5).

4.3.1 First article inspection samples: The contractor shall subject one complete light assembly, of each part number, to all the applicable tests of this specification as described under Test Methods, paragraph 4.5.

4.4 Quality conformance inspection:

The contractor shall furnish all samples and shall be responsible for accomplishing all the inspections. Quality conformance inspection shall be under the supervision of the government quality control representative. Acceptance or approval of material during the course of manufacture shall in no case be construed as a guarantee of the acceptance of the finished product. Quality conformance inspection shall consist of the following tests:

a. Examination of product (see 4.4.1)
b. Operational tests (see 4.4.2)
c. Examination of preparation for delivery (see 4.6)

4.4.1 Examination of product: Sampling for examination of product shall be conducted in accordance with MIL-STD-105, Inspection Level II. Acceptance shall be based on an acceptable quality level (AQL) of 2.5 defects per hundred units (see 4.5.1).

4.4.2 Operational tests: Sampling for operational tests shall be conducted in accordance with MIL-STD-105, Inspection Level S-2. Acceptance shall be based on an acceptable quality level (AQL) of 1.5 defects per hundred units (see 4.5.2).

4.5 Test methods:

4.5.1 Examination of product: Each light assembly shall be examined to determine conformance to the requirements of this specification with respect to material, dimensions, workmanship, marking, and other requirements not covered by tests.

4.5.2 Operation: Each light assembly shall be tested for proper operation by applying the design voltage of the lamp to the conductors.

4.5.3 Low temperature: The light assembly shall be subjected to a temperature of -65°C (-85°F) for a period of 48 hours. The temperature shall then be raised to -55°C (-67°F) for a period of 6 hours. While at this temperature, the light assembly shall be tested as specified for operation. The light assembly shall operate properly. There shall be no damage which would affect subsequent operation.

4.5.4 High temperature: The light assembly shall be subjected to a temperature of 70°C (158°F) for a period of 24 hours. The light assembly shall then be subjected to the test specified for operation. The light assembly shall operate properly. There shall be no damage which would affect subsequent operation.

4.5.5 Vibration: The light assembly shall be mounted on a vibration stand and shall be subjected to vibration with simple harmonic motion having an amplitude of approximately 0.06 inch. (Amplitude is defined as a total movement measured from one extreme to the opposite extreme.) The vibration shall consist of cyclic operation from approximately 10 cycles to 55 cycles and back to 10 cycles per second. The duration of 1 cycle of operation shall be approximately 1 minute. The light assembly shall be mounted horizontally and vibrated continuously in a longitudinal direction for a period of 3 hours. The test shall then be repeated with the axis of the vibration 90 degrees to the previous axis. No failure exclusive of the lamp shall occur as a result of this test. The light assembly shall be in a satisfactory operating condition at the end of the test and the assembly shall not droop or sag. The position of the reflector shall not be changed by more than 1/2 inch in any direction by the vibration.

4.5.6 Sand and dust: The light assembly shall be mounted in any position and subjected to a sand spray for a period of 4 hours. The sand stream shall not impinge directly upon the light assembly and the flow of sand shall not exceed 2.5 pounds per hour. The sand used shall be 4 pounds of foundry molding sand or equivalent which passes through a 150-mesh screen. The ambient temperature in the chamber shall be maintained at 50° to 60°C (122° to 140°F). The light assembly shall be operating during the test. The light assembly shall operate satisfactorily for the duration of the test and thereafter.

4.5.7 Altitude: The light assembly shall be placed in an altitude chamber maintained at a temperature of -65°C (-85°F) and the pressure reduced to simulate an altitude condition of 50,000 feet (3.436 inches of mercury absolute) for a period of 4 hours. There shall be no damage which would affect operation of the light assembly.

4.5.8 Salt spray: The light assembly shall be subjected to 50 hours to continuous salt spray in accordance with ASTM B117-64. The light assembly shall be washed and air-dried after the test. It shall not show evidence of excessive corrosion, or failure of any part that causes malfunctioning of the light assembly.

4.5.9 Humidity: The light assembly shall be placed in a chamber and kept for 30 days at a temperature of 65°C (149°F) and relative humidity of 95 percent. After the required time, the chamber shall be shut off and the light assembly shall be allowed to cool for 18 hours in this atmosphere in which the humidity rises to 100 percent as the temperature decreases. (Precaution shall be taken to prevent dripping on the light assembly.) There shall be no dimensional changes or other defects which would interfere with operation of the light assembly or interchangeability of parts.

4.6 Examination of preparation for delivery:

An examination of the preparation for delivery shall be performed to determine compliance with specified requirements. The lot shall consist of items, packages, or shipping containers, as applicable. The level shall be Level S-2 and the acceptable quality level (AQL) shall be 4.0 defects per hundred units. Any deviation from the requirements shall be classified as a defect. Sampling for inspection shall be in accordance with MIL-STD-105.

5. PACKAGING:

5.1 Preservation and packaging:

Preservation and packaging shall be Level A or C as specified (see 6.2).

5.1.1 Level A: Each light assembly shall be packaged Method IC-2 in accordance with MIL-P-116. Preservative is not required. Cushioning and blocking shall be in accordance with MIL-STD-1186.

5.1.2 Level C: Each light assembly shall be packaged in a commercial type carton or box to afford adequate protection against damage during shipment from supply source to the first receiving activity.

5.2 Packing:

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

5.2.1 Level A: Multiples of units packaged as specified in paragraph 5.1 shall be packed in snug fitting shipping containers conforming to PPP-B-636, class weather resistant. Contents of the fiberboard box shall not exceed the specified size and weight limitations of the type and class selected. Closure and reinforcement requirements shall be as specified in the appendix of the box specification.

5.2.2 Level B: Multiples of units packaged as specified in paragraph 5.1 shall be packed in snug fitting shipping containers conforming to PPP-B-636, class domestic. Contents of the fiberboard box shall not exceed the size and weight limitations of the type and class selected. Closure shall be in accordance with the appendix of the box specification.

5.2.3 Level C: Lights, packaged as specified in paragraph 5.1.2, shall be packed in a manner that will insure acceptance by common carrier at the lowest rate. The shipping container and method of packing shall conform to the Unified Freight Classification Rules and Regulations, or other carrier regulations as applicable to the mode of transportation.

5.3 Marking and labeling:

In addition to any special marking required by the procurement document, unit packages, intermediate packages and shipping containers shall be marked in accordance with the requirements of MIL-STD-129. Each interior package shall be durably and legibly marked with the following information in such a manner that the markings will not become damaged when the packages are opened:

LIGHT, DESK, 28V, LAMP POSITION ADJUSTABLE,
SEMIRIGID EXTENSION ARM, SCREW MOUNTED,
REFLECTOR CYLINDRICAL SHAPE
Military Part Number
Federal Stock Number
Manufacturer's Part No.
Contract or Order No.
Name of Manufacturer
Name of Contractor (if different from manufacturer)

5.3.1 Precautionary markings: The following precautionary markings shall appear on each package and shipping container:

FRAGILE
HANDLE WITH CARE

6. NOTES:

6.1 Intended use:

The desk light is intended for use on aircraft work desks.

6.2 Ordering data:

Procurement documents should specify the following:

a. Title, number, and date of this specification
b. The part number of the light assembly desired
c. Quantity of lights
d. Level of packaging and packing required (see 5.2)
e. Type required (see Table I)