MIL-L-6723C
1 November 1987
SUPERSEDING
MIL-L-6723B
16 February 1962

MILITARY SPECIFICATION

LIGHTS, AIRCRAFT, GENERAL SPECIFICATION FOR

This specification is approved for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers general requirements for aircraft lights.

1.2 Classification. The lights shall be furnished in the following types as specified:

Type I - Without ANVIS compatible filters.

Type II - With ANVIS compatible filters as specified in 3.3.5.1 (see 6.2.1).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and Standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

FEDERAL

PPP-B-576 - Box, Wood, Cleated, Veneer, Paper Overlaid.

PPP-B-585 - Box, Wood, Wirebound.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commanding Officer, Naval Air Engineering Center, Systems Engineering and Standardization Department (Code 53), Lakehurst, NJ 08733-5100 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 6220

PPP-B-591 - Boxes, Shipping, Fiberboard, Wood-cleated.

PPP-B-601 - Boxes, Wood, Cleated-Plywood.

PPP-B-621 - Box, Wood, Nailed and Lock-corner.

PPP-B-636 - Box, Shipping, Fiberboard.

PPP-T-60 - Tape, Packaging, Waterproof.

MILITARY

MIL-P-116 - Preservation, Methods of.

MIL-G-174 - Glass, Optical.

DOD-D-1000 - Drawings, Engineering and Associated Lists.

MIL-C-7989 - Covers, Light-Transmitting, for Aeronautical Lights, General Specification for.

MIL-L-10547 - Liners, Case and Sheet, Overwrap, Water-vaporproof or Waterproof, Flexible.

MIL-C-25050 - Colors, Aeronautical Lights and Lighting Equipment, General Requirements for.

MIL-C-83409 - Coating, Visor, Polycarbonate, Flying Helmet.

MIL-L-85762 - Lighting, Aircraft, Interior, AN/AVS-6 Aviator's Night Vision Imaging System (ANVIS) Compatibile.

STANDARDS

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-143 - Standards and Specifications, Order of Precedence for the Selection of.

MIL-STD-810 - Environmental Test Methods and Engineering Guidelines.

(See Supplement 1 for list of associated AN and MS standards.)

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

2.2 Other publications. The following document forms a part of this specification to the extent specified herein. Unless otherwise specified, the

issues of the documents which are DOD adopted shall be those listed in the issue of the DODISS specified in the solicitation. Unless otherwise specified, the issues of the documents not listed in the DODISS shall be the issue of the nongovernment document which is current on the date of the solicitation.

American Society of Testing and Materials (ASTM)

ASTM-D-3951 - Packaging, Commercial.

(Copies of ASTM-D-3951 should be obtained from the American Society of Testing and Materials, 1916 Race St., Philadelphia, PA 19103.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for AN or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified in the contract or purchase order, samples shall be subjected to first article inspection (see 4.2.a, 4.4 and 6.3).

3.2 Materials.

3.2.1 Protective treatment. When materials are used in the construction of the lights that are subject to deterioration when exposed to climatic and environmental conditions likely to occur during service usage, they shall be protected against such deterioration in a manner that will in no way prevent compliance with the performance requirements of this specification. The use of any protective coating that will crack, chip or scale with age or extremes of climatic and environmental conditions shall be avoided.

3.2.2 Selection of materials. Selection of materials not defined by this specification or the applicable MS or AN standard, shall be in accordance with MIL-STD-143.

3.2.2.1 Standard parts. Standard parts (MS, AN or JAN) shall be used wherever they are suitable for the purpose. Fastening devices used for assembly, such as bolts, nuts, washers and cotter pins having suitable properties may be used provided they can be replaced by the standard parts (MS AN or JAN) without alteration, and provided the corresponding standard part numbers are referenced in the standard parts list and, if practicable, on the contractor's drawings.

3.3 Design. The design shall conform to the applicable MS or AN standard (see 6.2.1.b).

3.3.1 Lamp. Lamps shall conform to applicable MS or AN standards, and shall have a rated operating potential in accordance with the detail specifications or drawings (see 6.2.1.b).

3.3.2 Soldering. No acid soldering flux shall be used in the construction of the assemblies.

3.3.3 Color of light. The light emitted by each light shall comply with MIL-C-25050 for the type and color specified on the MS or AN standard. See 3.3.5.1 when specified color and spectral distribution of light defined in the applicable MS or AN standard requires ANVIS compatibilty.

3.3.4 Operating potential. Unless otherwise specified, the light shall conform to the other requirements of this specification with the rated effective operating potential of the lamp applied to the electrical connections of the light.

3.3.5 Lenses. All lenses shall conform to MIL-C-7989.

3.3.5.1 ANVIS compatible lighting. When aviator's night vision imaging system (ANVIS) compatible lighting is required it shall be in accordance with the following requirements (see 4.10):

a. Polycarbonate, laminated or glass filters used in the ANVIS-compatible flood light assembly shall meet the requirements of 3.9.10, 3.10.8 and 3.10.9 of MIL-L-85762 and the environmental characteristics of Table I.

b. Failure is defined as discoloration or distortion of an ANVIS compatible flood light assembly to the degree of rendering the flood light assembly non-functional, or any out-of-tolerance performance of the light output.

c. The inclusion number for each glass filter used in the ANVIS compatible flood light assembly shall not exceed 10, as prescribed in MIL-G-174.

d. Glass filters used in the ANVIS compatible flood light assembly shall have one side polished and the other side shall have a matte finish providing uniformity of illumination of the light dispersed throughout the filter material. Polycarbonate filters used in the ANVIS compatible flood light assembly shall have one side polished and the other side shall have a matte finish.

e. Glass filters used in the ANVIS compatible flood light assembly shall have all edges sand swiped to preclude cuts, not to exceed .010 inch.

f. Polycarbonate filters shall be coated on both sides and on all edges per MIL-C-83409.

TABLE I. Environmental charactersitics.

a. General. The entire light assembly test sample shall first be subjected to the temperature cycling test and then the humidity test in that order.
b. Temperature cycling. The test sample shall withstand 10 temperature cycles from +100°C to -40°C without degradation.
c. Humidity. The test sample, having successfully completed the temperature cycling test, shall undergo the humidity test of MIL-STD-810, Method 507, Procedure II, without degradation.

3.3.6 Electrical circuit. Unless otherwise indicated by the standard drawings or detail specifications, the electrical circuit of the light which is of other than ground potential, shall not be converted within the light to any conducting part which is exposed when the light is completely assembled and closed, except the electrical connection(s) of the light.

3.4 Construction. The lights shall be so constructed that no parts will loosen in service. They shall be built to withstand the strains, jars, vibrations and other conditions incident to shipping, storage, installation and service.

3.5 Maintainability. The lights shall be so constructed that adjustments, repairs and lamp replacement can easily be made by the personnel of operating units and overhaul bases.

3.6 Performance. The lights shall perform satisfactorily when subjected to the test requirements of section 4.

3.6.1 Moisture and fungus-resistant treatment. Equipment shall be fungus proofed by selection of parts and materials as non-nutrient for fungus, or the parts and materials shall be so treated prior to their use in the equipment that overall spraying of the equipment is not necessary.

3.6.2 Interchangeability. All parts having the same manufacturer's part number shall be directly and completely interchangeable with each other with respect to installation and performance. Changes in manufacturer's part numbers shall be governed by the drawing number requirements of DOD-D-1000.

3.7 Weight. The weight of the light shall not exceed that specified on the applicable MS or AN standard.

3.8 Dimensions. The dimensions of the light shall be in accordance with the applicable MS or AN standard.

3.9 Identification of product. Each light shall be marked in accordance with MIL-STD-130.

3.10 Workmanship. The lights, including all parts and accessories, shall be so constructed and finished that it shall be free from all defects which would affect proper functioning in service. Particular attention should be given to neatness and thoroughness of soldering, wiring, marking of parts and assemblies, interchangeability, color of light, moisture and fungus resistant treatment and freedom of parts from burrs and sharp edges.

3.11 Low temperature. The lights, when tested in accordance with 4.7.3, shall operate without failure.

3.12 High temperature. The lights, when tested in accordance with 4.7.4, shall operate without failure.

3.13 Sand and dust. The lights, when tested in accordance with 4.7.5, shall operate without failure.

3.14 Salt spray. The lights, when tested in accordance with 4.7.6, shall operate without failure.

3.15 Humidity. The lights, when tested in accordance with 4.7.7, shall operate without failure.

3.16 Vibration. The lights, when tested in accordance with 4.7.8, shall operate without failure.

3.17 Light output. The lights, when tested in accordance with 4.7.9, shall operate without failure.

3.18 Dielectric. The lights, when tested in accordance with 4.7.10, shall operate without failure.

3.19 Examination of product. The lights, when tested in accordance with 4.7.1, shall operate without failure and show no signs of structural degradation.

3.20 Operation. The lights, when tested in accordance with 4.7.2, shall operate without failure and show no signs of structural degradation.

4. QUALITY ASSURANCE

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier 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 or any other facilities suitable for 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.

4.1.1 Responsibility for compliance. All items must meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.2 Classification of requirements. The examination and testing of the lights shall be classified as follows:

a. First article inspection. First article inspection consists of examinations and tests performed on samples which are representative of the production item after award of a contract to determine that the production item conforms to the requirements of this specification (see 3.1, 4.4 and 4.4.1).

b. Quality conformance inspection. Quality conformance inspection consists of examinations and tests performed on individual products or lots to determine conformance of the products or lots with the requirements set forth in this specification (see 4.5 and 4.5.1).

4.3 Inspection conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in 4.6.

4.4 First article inspection. First article inspection shall consist of the following:

a. Individual tests (see 4.5.1)

b. Low temperature (see 4.7.3)

c. High temperature (see 4.7.4)

d. Sand and dust (see 4.7.5)

e. Salt spray (see 4.7.6)

f. Humidity (see 4.7.7)

g. Vibration (see 4.7.8)

h. Light output (see 4.7.9)

i. Dielectric (see 4.7.10)

4.4.1 First article samples. Unless otherwise specified, as soon as practicable after the award of the contract or order, the manufacturer shall submit three lights as specified in the contract or order. The sample shall be representative of the construction, workmanship, components and materials used during production. When a contractor is in continuous production of these lights, from contract to contract, submission of further first article inspection samples on the new contract may be waived at the discretion of the procuring activity (see 6.2.1.d). Approval of the first article inspection samples or the waiving of the first article inspection does not preclude the requirements for performing the qualitiy conformance inspection. The first article inspection samples shall be furnished to the Government as directed by the contracting officer (see 6.2.1.e).

4.5 Quality conformance inspection. Quality conformance inspection shall consist of the individual tests of this specification.

4.5.1 Individual tests. Each light shall be subjected to the following individual tests:

a. Examination of product (see 4.7.1)

b. Operation (see 4.7.2)

In addition, each light shall be subjected to any other test specified herein which the inspector considers necessary to determine compliance with this specification.

4.6 Test conditions.

4.6.1 Standard atmospheric conditions. Whenever the temperature and pressure existing at the time of the test are not specified definitely, the test shall be made at atmospheric pressure (approximately 29.92 inches of Hg) and at room temperature (approximately 25°C). When tests are made with atmospheric pressure or room temperature differing materially from the above values, proper allowance shall be made for the difference from the specified condition.

4.6.2 Potential. Unless otherwise specified, all tests shall be performed with the rated effective operating potential of the lamp applied to the electrical connections of the light, and with the required lamp(s) installed in the light.

4.7 Test methods.

4.7.1 Examination of product. Each light shall be inspected to determine conformance to the requirements specified herein with respect to materials, workmanship and marking. Each light shall be inspected to determine that it is correctly assembled as evidenced by visual or other inspection as required (see 3.19).

4.7.2 Operation. Each light shall be tested for operation (see 3.20).

4.7.3 Low temperature. The light, not energized, shall be subjected to the low temperature tests, Method 502, Procedure II of MIL-STD-810. The low temperature limit shall be -54°C (-65°F). After stabilization, the light shall be operated for two hours (see 3.11).

4.7.4 High temperature. The light shall be subjected to the high temperature tests of Method 501, Procedure II of MIL-STD-810. The high temperature limit shall be 70°C (160°F) (see 3.12).

4.7.5 Sand and dust. The light shall be subjected to the blowing sand and blowing dust test procedures of MIL-STD-810 (see 3.13).

4.7.6 Salt spray. The light shall be subjected to the salt spray tests, Method 509 of MIL-STD-810, except that the test period for interior lights shall be 50 hours (see 3.14).

4.7.7 Humidity. The light shall be subjected to the humidity tests, Method 507 of MIL-STD-810 (see 3.15).

4.7.8 Vibration. The light shall be subjected to the vibration tests, Method 514 of MIL-STD-810. The entire test shall be conducted at room temperature. The test shall include vibration at resonance and cycling. Failure of lamp filaments shall not be construed as cause for rejection. However, at the end of the vibration period, with a sound lamp installed and the lamp circuit energized, the light shall be checked for electrical operation. Any damage or loosening of parts as a result of these tests shall be cause for rejection (see 3.16).

4.7.9 Light output. The light output of the light shall be measured to determine that it conforms to the standard for the light (see 3.17).

4.7.10 Dielectric. The light electric circuit, with the lamp removed, shall withstand the application of 1500 ±100 volts root mean square (RMS), to all parts not connected electrically to the case or ground, without arcing, burning or breakdown of the insulation (see 3.18).

4.8 Noncompliance. If a sample fails to pass the tests of section 4, the manufacturer shall notify the cognizant inspection activity of such failure and take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured with essentially the same materials and processes, and are

considered subject to the same failure. Acceptance and shipment of the product shall be discontinued until corrective action acceptable to the cognizant inspection activity has been taken. After the corrective action has been taken, all tests and examinations or the test which the original sample failed, at the option of the cognizant inspection activity, shall be repeated on additional sample units. In the event of failure after reinspection, information concerning the failure shall be furnished to the cognizant inspection activity.

4.9 Examination and 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 S-2, and the acceptable quality level (AQL) shall be 4.0 expressed as defects per hundred units. Any deviation from the requirements specified shall be classified as a defect. Sampling for inspection shall be in accordance with MIL-STD-105.

4.10 ANVIS compatible lighting. When required as specified in the contract or purchase order, ANVIS compatible lighting inspection requirements shall be in accordance with MIL-L-85762 (see 3.3.5.1).

PACKAGING

5.1 Preservation. Preservation shall be level A or commercial, as specified (see 6.2.1.c).

5.1.1 Level A. Each light shall be individually packaged in accordance with Method IC-2 of MIL-P-116. Cushion as applicable to protect the item against damage, shall be in accordance with the general requirements as specified in MIL-P-116.

5.1.2 Commercial. Preservation shall be in accordance with ASTM-D-3951.

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

5.2.1 Level A. Lights packaged as specified in 5.1.1 shall be packed in export type containers conforming to PPP-B-576, PPP-B-585, PPP-B-591, PPP-B-601, PPP-B-621 or PPP-B-636. (Note: PPP-B-636 shall not be used for army use.) Insofar as practical, containers shall be of uniform shape and size, be of minimum cube and tare consistent with the protection required and contain identical quantities. Wood and wood-cleated containers shall be provided with a case liner conforming to MIL-L-10547, and shall be sealed in accordance with the appendix thereto. The case liner shall not be required when the exterior container conforming to class 2, grade 3 of PPP-B-636 is used, and is sealed at all joints and seams, including manufacturer's joints, with tape conforming to type III, class I of PPP-T-60. The gross weight shall not exceed the weight limitations of the applicable container specifications.

5.2.2 Level B. Lights packaged as specified in 5.1.1 shall be packed in domestic type containers conforming to PPP-B-576, PPP-B-585, PPP-B-591, PPP-B-601, PPP-B-621 or PPP-B-636. (Note: For army use, the containers shall conform to PPP-B-636, Class Weather Resistant.) Insofar as practical, containers shall be of uniform shape and size, be of minimum cube and tare consistent with the protection required and contain identical quantities. The gross weight shall not exceed the weight limitations of the applicable container specification.

5.2.3 Commercial. Lights packaged as specified in 5.1.1 shall be packed in a manner to insure carrier acceptance and safe delivery at destination. Containers shall be in accordance with regulations of carriers applicable to the mode of transportation.

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 lights covered in this specification are intended for use in military aircraft.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number and date of this specification.

b. Type of lamp desired (see 1.2).

c. AN or MS part number of light desired.

d. Applicable levels of preservation and packaging required (see section 5).

e. First article inspection and testing, if required (see 3.1 and 4.4).

f. Name and address of the first article inspection laboratory (see 4.4.1).

g. Applicable lamp, if required (see 3.3.1).

6.3 First article. When a first article inspection is required, the light should be a first article sample. The contracting officer should include specific instructions in acquisition documents regarding arrangements for examinations, approval of first article test results and disposition of first articles. Invitations for bids should specify that the Government reserves the right to waive the requirement for samples for first article inspection to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract.

6.4 Changes from previous issue. Astericks or vertical lines are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

6.5 Subject term (key word) listing.

ANVIS compatible
Lighting, aircraft

Custodians:
Navy - AS
Army - AV
Air Force - 11

Review activity:
DLA-IS

Preparing activity:
Navy - AS

(Project No. 6220-0330)

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NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions – Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
MIL-L-6723 C	LIGHTS AIRCRAFT, GENERAL SPECIFICATION FOR

3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION *(Mark one)*
	☐ VENDOR
	☐ USER
b. ADDRESS *(Street, City, State, ZIP Code)*	☐ MANUFACTURER
	☐ OTHER *(Specify)*:

5. PROBLEM AREAS

a. Paragraph Number and Wording:

b. Recommended Wording:

c. Reason/Rationale for Recommendation:

6. REMARKS

7a. NAME OF SUBMITTER *(Last, First, MI)* – Optional	b. WORK TELEPHONE NUMBER *(Include Area Code)* – Optional
c. MAILING ADDRESS *(Street, City, State, ZIP Code)* – Optional	8. DATE OF SUBMISSION *(YYMMDD)*

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