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MIL-DTL-15098E

23 August 2010

SUPERSEDING

MIL-L-15098D

14 December 1973

DETAIL SPECIFICATION

LAMPS, GLOW,
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 hermetically sealed glow lamps containing gases or vapor in which luminosity is produced by ionization of these gases for indicating and circuit control functions. The region of high luminosity is near the negative electrode (or cathode).

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of the documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications and standards. The following specifications and standards form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

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| Comments, suggestions, or questions on this document should be addressed to Defense Logistics Agency Aviation VEB, 8000 Jefferson Davis Highway, Richmond, VA 23297-5616, or e-mailed to STDZNMGT@dla.mil . Since contact information can change, you may want to verify the currency of this address information using the ASSIST database at https://assist.daps.dla.mil/ . |
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DEPARTMENT OF DEFENSE SPECIFICATIONS

(See supplement 1 for list of specification sheets.)

DEPARTMENT OF DEFENSE STANDARDS

| | |
|--------------|--|
| MIL-STD-202 | - Test Method Standard Electronic and Electrical Component Parts |
| MIL-STD-1285 | - Marking of Electrical and Electronic Parts |

(Copies of these documents are available online at <https://assist.daps.dla.mil/> or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.3 Non-government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

AMERICAN SOCIETY FOR QUALITY (ASQ)

| | |
|----------|---|
| ASQ Z1.4 | - Sampling Procedures and Tables for Inspection by Attributes |
|----------|---|

(Copies of this document are available online at <http://www.asq.org/> or from American Society of Quality, 600 North Plankinton Avenue, Milwaukee, WI 53203.)

2.4 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Specification sheets. The individual item requirements shall be as specified herein and in accordance with the applicable specification sheets. In the event of any conflict between the requirements of this specification and the specification sheet, the latter shall govern.

3.2 First article. When specified (see 6.2), the contractor shall furnish sample units for first article inspection and approval (see 4.3).

3.3 General characteristics. The general characteristics of glow lamps shall be such that once a discharge has commenced, the voltage drop across the electrodes remains essentially constant throughout an appreciable change in current flow. This entails the insertion of a current limiting resistor (see 3.4), so calculated that current cannot exceed a predetermined value. No post-delivery aging or conditioning shall be required to achieve the stability and reliability needed to meet the applicable performance requirements stated herein.

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3.4 Resistors. Unless otherwise specified (see 3.1), the current limiting resistors shall be located externally. Unless otherwise specified (see 6.2), external resistors shall not be furnished with the lamps.

3.5 Bulb shape, size, and finish.

3.5.1 Bulb shape. The bulb shape shall be as specified (see 3.1) and shall be designated by letters as follows:

- G - Globular
- S - Straight side
- T - Tubular

3.5.2 Bulb size. The bulb size shall be expressed by a number denoting the greatest diameter in eighths of an inch. Example: a bulb size of 4-1/2 would indicate a diameter of 9/16 inch ($4\text{-}1/2 \times 1/8 = 9/2 \times 1/8 = 9/16$).

3.5.3 Bulb finish. Bulb finish for glow lamps shall be clear (colorless).

3.6 Lamp bases. Lamp bases shall be as specified (see 3.1) and shall be identified by the following symbols:

- M - Medium screw
- CS - Candelabra screw
- DCB - Double contact bayonet candelabra
- DCBS - Double contact bayonet skirted
- MB - Single contact miniature bayonet
- SMF - Single contact midget flange
- NB - Unbased wire leads treated to meet solderability requirements

3.7 Electrode shapes. Electrode shapes shall be as specified (see 3.1) and shall be identified by the following symbols:

- P2 - Split disk
- P3 - Split hemispherical plates
- P4 - Parallel disks
- PW5 - Cylinder and helical electrode
- PW27 - Wire ring, flat plate
- W11 - Parallel posts

3.8 Solderability of wire terminals. When tested in accordance with 4.6.2, the dipped surfaces of the type NB unbased wire leads shall be at least 95 percent covered with a new, smooth, solder coating. The remaining 5 percent of the lead surface shall show only small pinholes or rough spots, and these deficiencies shall not be concentrated in one area. Bare base metal and areas where the solder dip failed to cover the original coating are indications of poor solderability, and shall be cause for rejection. In case of dispute, the percent of coverage with

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pinholes or rough spots shall be determined by actual measurement of these areas as compared to the total area.

3.9 Starting voltage. When tested in accordance with 4.6.3, the starting voltage shall be as specified (see 3.1).

3.10 Maintaining voltage. When tested in accordance with 4.6.4, the maintaining voltage shall be as specified (see 3.1).

3.11 Extinguishing voltage. When tested in accordance with 4.6.5, the extinguishing voltage shall be as specified (see 3.1).

3.12 Initial light output. When tested in accordance with 4.6.6, the initial light output shall be not less than specified (see 3.1).

3.13 Leakage resistance. When tested in accordance with 4.6.7, the leakage resistance shall be not less than 100 megohms, unless otherwise specified (see 3.1).

3.14 Vibration. When tested in accordance with 4.6.8, lamps shall remain electrically and mechanically operative (see 3.1).

3.15 Shock. When tested in accordance with 4.6.9, lamps shall remain electrically and mechanically operative (see 3.1).

3.16 Life. When tested in accordance with 4.6.10, the average useful lamp life shall be as specified (see 3.1 and 6.4).

3.17 Electrode glow. When tested in accordance with 4.6.11, the indicator lamps with W11 electrode shapes (see 3.1) shall produce corona coverage as specified. The absence of corona between the electrodes is permissible.

3.18 Marking. Lamps shall be marked in accordance with the requirements of MIL-STD-1285 with the industry type number (ANSI) and the manufacturer's source code (CAGE). Where physical size precludes the printing of required data on the lamp itself, each unit package, exterior container, and unitized load shall be marked with the required information in addition to the corresponding military part number as identified in the cross-reference table (see 6.8). In addition, lamps containing radioactive materials shall be marked as specified in 3.18.1.

3.18.1 Radioactive marking. Lamps with intentionally added radioactive isotopes with a measured radioactivity level less than or equal to 0.002 microcuries per gram shall be considered non-radioactive for purposes of marking. Lamps with intentionally added radioactive isotopes with an emission level below 0.5 millirems per hour shall be marked in accordance with International Atomic Energy Agency (IAEA) marking requirements for category I radionuclides. Where size precludes, radioactive marking information shall be placed on the unit package.

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3.19 Workmanship. Lamp shall be processed in such a manner as to be uniform in quality and shall be free of cracks, chips, sharp edges, and burrs on metal parts. Soldering, welding, brazing, cementing, and wiring shall be thorough. Alignment of parts shall be accurate.

3.20 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible, provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.3).

b. Conformance inspection (see 4.4).

4.2 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in the general requirements of MIL-STD-202.

4.3 First article inspection. First article inspection shall be performed by the supplier, after award of contract and prior to production, at a location acceptable to the Government. First article inspection shall be performed on sample units which have been produced with equipment and procedures normally used in production. First article approval is valid only on the contract or purchase order under which it is granted, unless extended by the Government to other contracts or purchase orders. Examination and tests shall be as specified in 4.3.1.

4.3.1 Samples for first article inspection. Twenty lamps, of each type, shall be subjected to the examination and tests specified in table I in the order shown.

TABLE I. First article inspection.

| Examination or test | Requirement paragraph | Examination or test paragraph | Number of sample units to be inspected |
|------------------------------------|------------------------|-------------------------------|--|
| Visual and dimensional | 3.4 to 3.7, 3.18, 3.19 | 4.6.1 | All |
| Solderability | 3.8 | 4.6.2 | All |
| Starting voltage in light | 3.9 | 4.6.3 | 1 - 10 |
| Starting voltage in total darkness | 3.9 | 4.6.3 | 11 - 20 |
| Maintaining voltage 1 | 3.10 | 4.6.4 | All |
| Extinguishing voltage 1 | 3.11 | 4.6.5 | 1 - 10 |
| Initial light output ² | 3.12 | 4.6.6 | 1 - 10 |
| Leakage resistance ¹ | 3.13 | 4.6.7 | 11 - 20 |

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TABLE I. First article inspection - Continued.

| Examination or test | Requirement paragraph | Examination or test paragraph | Number of sample units to be inspected |
|-----------------------------|-----------------------|-------------------------------|--|
| Vibration | 3.14 | 4.6.8 | All |
| Shock | 3.15 | 4.6.9 | All |
| Life | 3.16 | 4.6.10 | All |
| Electrode glow ² | 3.17 | 4.6.11 | All |

¹ Applicable only to circuit control lamps.

² Applicable only to indicator lamps, when specified (see 3.1).

4.3.2 Failures. One or more failures shall be cause for refusal to grant first article approval.

4.4 Conformance inspection.

4.4.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A inspection (see 4.4.1.2).

4.4.1.1 Inspection lot. An inspection lot shall consist of all lamps covered by a single part number, produced under essentially the same conditions, and offered for inspection at one time.

4.4.1.2 Group A inspection. Sample lamps shall be selected from each lot in accordance with ASQ Z1.4, inspection level II, with the Acceptance Quality Limit (AQL) as specified in the contract (see 6.2) for the examination and tests specified in table II and shall be conducted in the order listed.

TABLE II. Group A inspection.

| Examination or test | Requirement paragraph | Examination or test paragraph |
|----------------------------------|----------------------------|-------------------------------|
| Visual and dimensional | 3.4 to 3.7, 3.18, and 3.19 | 4.6.1 |
| Solderability | 3.8 | 4.6.2 |
| Starting voltage in light | 3.9 | 4.6.3 |
| Maintaining voltage ¹ | 3.10 | 4.6.4 |
| Leakage resistance ¹ | 3.13 | 4.6.7 |
| Electrode glow ² | 3.17 | 4.6.11 |

¹ Applicable only to circuit control lamps.

² Applicable only to indicator lamps with W11 electrodes.

4.4.1.3 Group B tests. Twenty sample lamps shall be selected from the first lot and periodically thereafter, if required under 6.2, and shall be subjected to the tests specified in table III in the order listed. Samples selected shall have passed the group A inspection specified in 4.4.1.2. If one or more samples fail to pass the group B tests, the lot shall be subject to rejection. Sample units which have been subjected to the group B tests shall not be offered for delivery.

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TABLE III. Group B tests.

| Test | Requirement paragraph | Test paragraph |
|------------------------------------|-----------------------|----------------|
| Starting voltage in total darkness | 3.9 | 4.6.3 |
| Extinguishing voltage ¹ | 3.11 | 4.6.5 |
| Initial light output ² | 3.12 | 4.6.6 |
| Vibration | 3.14 | 4.6.8 |
| Shock | 3.15 | 4.6.9 |
| Life | 3.16 | 4.6.10 |

¹ Applicable only to circuit control lamps.

² Applicable only to indicator lamps, when specified (see 3.1).

4.5 Test conditions.

4.5.1 Electrostatic and electromagnetic fields. The test area shall be relatively free of electrostatic and radio frequency electromagnetic fields so as not to affect the firing potential of the lamps.

4.5.2 Couplings and shields. Capacitive couplings and electromagnetic shields, including portions of the body, metal plates, dark enclosures, photometer spheres and electrical conductors, other than those connected to the lamp under test, shall be kept at least 6 inches from the lamp being tested for starting, maintaining and extinguishing voltages.

4.5.3 Alternating current (AC) test voltage and frequency. The AC test voltage shall be a 60 Hertz (Hz) sine wave having a harmonic content of not more than 3 percent root mean square (rms) of the fundamental. Life test AC voltage shall be 120 ± 3.6 volts AC and shall have a maximum crest factor of 1.45.

4.5.4 Direct current (DC) test voltage. Unless otherwise specified (see 3.1), DC life test voltage shall be 120 ± 1.2 volts. DC test voltage shall be of sufficient magnitude for the lamp under test and shall have a ripple of less than 0.1 percent, except that for life testing, the ripple shall be less than 1.0 percent.

4.5.5 Measurement in light. Measurement in light shall be made in an unobstructed ambient illumination of 5 to 50 lumens per square foot (lm/ft^2).

4.5.6 Conditioning of lamps for measurement in dark. Lamps to be measured in total darkness shall have been held inoperative for a period of at least 24 hours and in total darkness (less than 0.1 lm/ft^2 ambient illumination) for a minimum of 10 seconds immediately prior to measurement.

4.5.7 Measurement in total darkness. Measurement in total darkness shall be made in a light-tight enclosure with no internal illumination.

4.5.8 Lamp mountings. For making electrical tests, based lamps shall be mounted in sockets which meet the inspection conditions specified herein; wire lead lamps may be suspended by their leads. For mechanical shock and vibration tests, based lamps shall be

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mounted by their normal mounting means; wire lead lamps shall be secured to the test fixture so as to prevent relative movement between lamp and fixture at the point of attachment.

4.6 Examination and tests.

4.6.1 Visual and dimensional examination. Lamps shall be visually and dimensionally examined to verify that the physical characteristics, dimensions, marking and workmanship are in accordance with the applicable requirements specified herein (see 3.4 through 3.7, 3.18, and 3.19).

4.6.2 Solderability. Wire lead lamps shall be tested in accordance with method 208 of MIL-STD-202 to determine conformance with the requirements specified in 3.8.

4.6.3 Starting voltage (see 3.9). The lamps shall be wired as shown on figure 1. For lamps with external resistors, R_1 shall be increased while continuously observing V_2 for the highest voltage reached just before the voltmeter indication decreases abruptly. For lamps with resistors in their bases, R_1 shall be increased while continuously observing V_1 for the highest voltage reached just before the ammeter indication increases abruptly and the lamp glows. The highest voltage reached is the starting voltage. The lamps shall be tested in light and in total darkness (see 4.5.5 through 4.5.7).

4.6.4 Maintaining voltage (see 3.10). The lamps shall be wired as shown on figure 1. With the lamp operated at the specified test current (see 3.1), the maintaining voltage shall be the voltage indicated on V_1 . This test is not applicable to lamps having resistors in their bases.

4.6.5 Extinguishing voltage (see 3.11). The lamps shall be wired as shown on figure 1. R_1 shall be decreased while continuously observing V_2 for the lowest voltage reached just before the voltmeter indication increases abruptly. The lowest voltage reached is the extinguishing voltage. This test is not applicable to lamps having resistors in their bases.

4.6.6 Initial light output (see 3.12). Initial light output test shall be conducted as follows:

- a. Mount the test and calibration lamps into the integrating (Ulbricht) sphere as indicated on figure 2 so that the baffle prevents direct illumination of the diffusing glass by either lamp.
- b. Energize the photomultiplier and allow approximately 15 minutes for warm-up and stabilization (see figure 3.) A solid-state photometer of similar performance characteristics may be substituted for the photomultiplier and voltmeter in steps (d) through (h) below.
- c. Apply voltage to the calibration lamp as required for its calibrated light output (see figure 4).
- d. Adjust the photomultiplier output to correspond with the known output of the calibration lamp. This adjustment is made by varying resistor R_1 on figure 3.
- e. Without further adjustment of the photomultiplier, read the outputs of two additional calibration lamps, then adjust the photomultiplier output to the average of the three lamps.
- f. De-energize the calibration lamp.

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g. Energize the lamp under test and adjust transformer T on figure 5 so that the specified design current (see 3.1) flows through the test lamp.

h. Allow approximately 1 minute for the lamp under test to stabilize, then record light output indicated by voltmeter V_1 on figure 3.

4.6.6.1 Recalibration of test equipment. After measuring five test lamps, the photometer shall be recalibrated as before and corrected for drift. Recalibration shall be performed with the same three calibration lamps.

4.6.7 Leakage resistance (see 3.13). The lamp and specified series resistor in the test circuit (see figure 1) shall be connected with an ammeter or galvanometer of suitable range. V_2 shall be open-circuited. R_1 shall be adjusted to apply 45 ± 1 volts to V_1 . V_1 and A shall be recorded. The leakage resistance shall be computed as:

$$R_L = \frac{V_1}{A} - R_2$$

Unless R_2 is in the lamp base, it may be omitted from the circuit when this test is conducted.

4.6.8 Vibration (see 3.14). The glow lamps shall be subjected to the vibration test, method 204 of MIL-STD-202. The following details shall apply:

- a. Mounting - As specified in 4.5.8.
- b. Test condition - C.

4.6.9 Shock (see 3.15). Lamps shall be tested in accordance with 4.6.9.1 or 4.6.9.2, as specified (see 3.1).

4.6.9.1 Method I. Lamps shall be tested in accordance with method 207 of MIL-STD-202. The following details apply:

- a. Mounting fixture - In accordance with method 207 of MIL-STD-202.
- b. Electrical load - Not applicable.

4.6.9.2 Method II. Lamps shall be tested in accordance with method 213 of MIL-STD-202. The following details shall apply:

- a. Mounting - See 4.5.8.
- b. Test condition - C.

4.6.10 Life (see 3.16). The glow lamp with specified series resistor shall be operated at the specified test current (see 3.1, 4.6.3, and 4.6.4) until the end of useful life (see 4.6.10.1) is reached. Life testing shall be interrupted once per day. Circuit components shall be tested on DC and correct polarity shall be observed when testing lamps which have polarity indicated (see 3.18). Indicator lamps shall be tested on AC.

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4.6.10.1 End of useful life. End of useful life is defined as the time at which the following changes occur, as applicable:

- a. Circuit components - When starting voltage exceeds the specified initial maximum value by 5 volts.
- b. Standard brightness indicators - Decrease in light output to 50 percent of the initial value.
- c. High brightness indicators - Starting voltage equals the nominal circuit voltage (see 3.1).

4.6.11 Electrode glow (see 3.17). Indicator lamps with a W11 electrode shape shall have a minimum initial corona coverage of 30 percent of the electrode length (see 3.1), when operated at rated current and voltage for 1 minute. The 30 percent minimum corona coverage shall begin within 0.0394 inch (1 mm) from the electrode tips (as shown on figure 6) and shall be continuous on each electrode when viewed as shown on figure 7.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activities within the Military Service or Defense Agency, or within the military service's system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The lamps covered by this specification are intended for use in indicating and circuit control functions.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Applicable specification sheet (see 3.1).
- c. Part number of required lamp (see 3.1 and 6.7).
- d. Whether external resistor will be furnished with the lamp (see 3.1 and 3.4).
- e. Marking (see 3.1 and 3.18).
- f. First article inspection, if required (see 3.2).
- g. AQL (see 4.4.1.2).
- h. Group B lot sampling schedule for conformance testing, if required (see 4.4.1.3 and 6.3).
- g. Packaging requirements (see 5.1).

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6.3 Sampling periodicity. Procuring activities should assess the need for recurrent group B testing over the term of the contract to establish a sampling and testing schedule that best fits the needs of the contract.

6.4 First article. If required (see 6.2), first article testing conducted in accordance with the procedures described herein (see 4.3) and approved under the appropriate provisions of Federal Acquisition Regulation (FAR) 52.209, "Contractor Qualifications Provisions and Clauses", may be for standard production items from the contractor's current inventory. The first article should consist of twenty of each type of lamp. The contracting officer should include specific instructions in all acquisition documents, regarding arrangement for examinations, test, and approval of the first article.

6.5 Average life data. The specified average useful lamp life (see 3.1) is based upon operating the lamps at the specified design current. If approval is obtained from the procuring activity, the supplier may provide test results from their periodic testing to substantiate the average life requirements.

6.6 Nominal watts. Nominal watts include power expended in the series resistors (see 3.1).

6.7 Characteristic gas and glow color. Characteristic gas and glow color are indicative of lamp construction and performance. Other gases may be included and may alter the specified glow color.

6.8 Cross-reference. Glow lamps having American National Standards Institute (ANSI) numbers and former industry lamp numbers are cross-referenced in table IV.

TABLE IV. Part number cross-reference.

| Military part no. | ANSI | Former lamp no. |
|-------------------|-----------|-----------------|
| M15098/1-001 | A9A-T | NE-2ET |
| M15098/1-002 | C2A-T | NE-2HT |
| M15098/1-003 | A2A-T | NE-2AT |
| M15098/2-001 | 5AC | NE-68 |
| M15098/2-002 | 5AG-A | NE-76 |
| M15098/2-003 | 5AH | NE-83 |
| M15098/2-004 | RT2-32-1A | - |
| M15098/2-005 | 5AJ | NE-86 |
| M15098/3-001 | W1A | AR-1 |
| M15098/3-002 | R2A | NE-34 |
| M15098/4-001 | J5A | NE-30 |
| M15098/5-001 | J2A | AR-3 |
| M15098/5-002 | B7A | NE-45 |

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TABLE IV. Part number cross-reference - Continued.

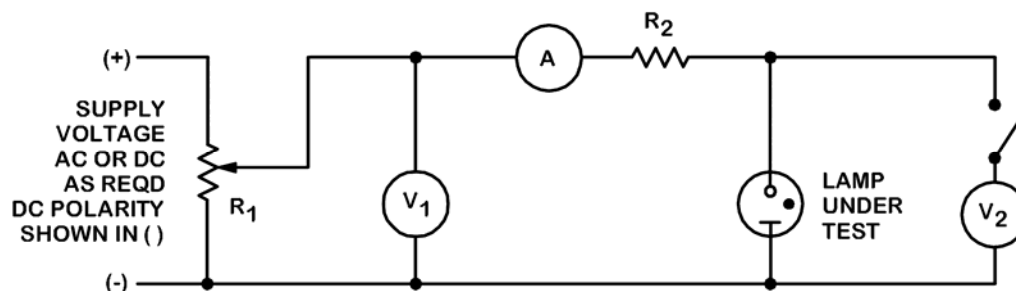
| Military part no. | ANSI | Former lamp no. |
|-------------------|------|-----------------|
| M15098/6-001 | J3A | AR-4 |
| M15098/6-002 | B9A | NE-48 |
| M15098/7-001 | B5A | NE-17 |
| M15098/8-001 | L5A | NE-32 |
| M15098/9-001 | R9A | NE-42 |
| M15098/10-001 | B1A | NE-51 |
| M15098/10-001R | B1AR | NE-51-R |
| M15098/10-002 | B2A | NE-51H |
| M15098/10-002R | B2AR | NE-51H-R |
| M15098/11-001 | C7A | NE-2D |
| M15098/11-002 | C9A | NE-2J |
| M15098/11-003 | A1G | - |
| M15098/11-004 | A1H | - |
| M15098/12-001 | R1A | NE-79 |

6.9 Subject term (key word) listing.

Argon
 Circuit control
 External
 Helium argon
 Indicator
 Integrating sphere
 Internal
 Neon
 Photometer
 Photometric
 Photomultiplier
 Ulbricht
 W11

6.10 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

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R_1 - Resistance divider.

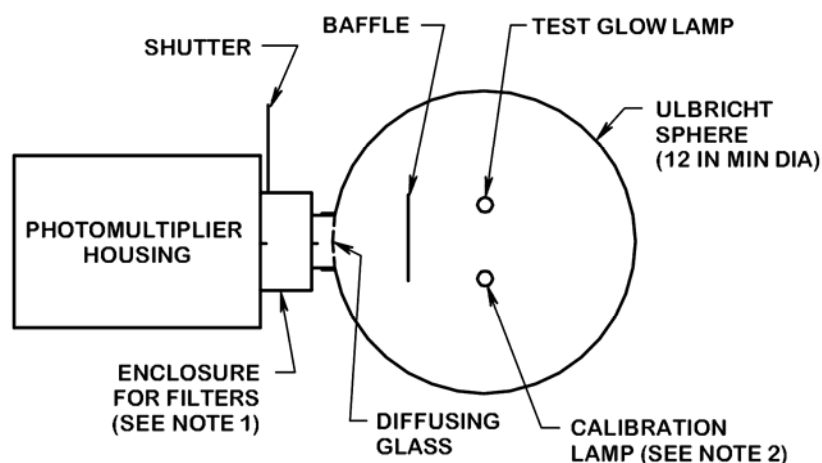
V_1 - Voltmeter.

A - Ammeter – impedance less than 1 percent of series impedance R_2 . For AC measurements, use a thermocouple ammeter or equivalent.

R_2 - Series resistor – magnitude as specified for lamp under test (see 3.1).

V_2 - Voltmeter – minimum 10 megohms input resistance.

FIGURE 1. Design voltage and current test circuit.



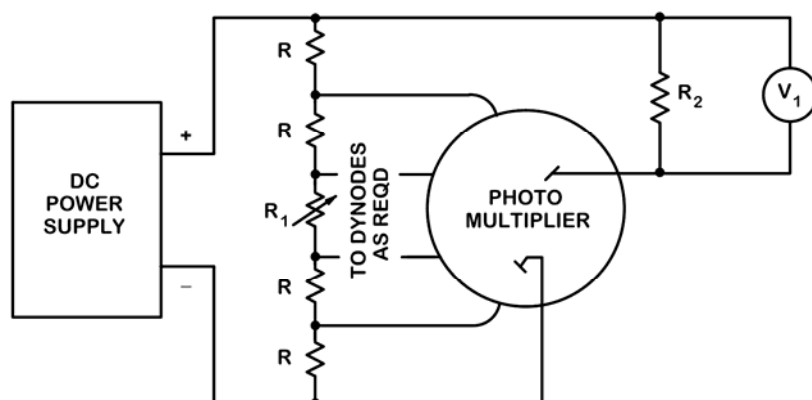
NOTES:

1. For testing neon and argon indicator lamps, the filter shall be such that the frequency response of the photomultiplier tube, photometer, or photo cell used in conjunction with a Kopp 5970 filter, or equivalent, gives a narrow band response peaked at 360 nanometers.

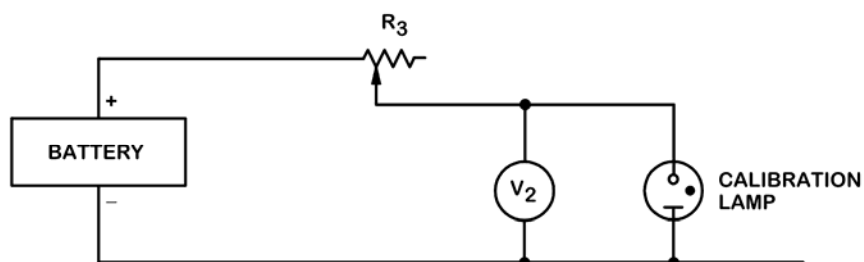
2. Calibrate for light output at 3-month intervals, or less, using calibration lamps versus primary standard lamps. Sources for primary standard lamps and calibration services are available through the National Institute of Standards and Technology (NIST).

FIGURE 2. Test fixture.

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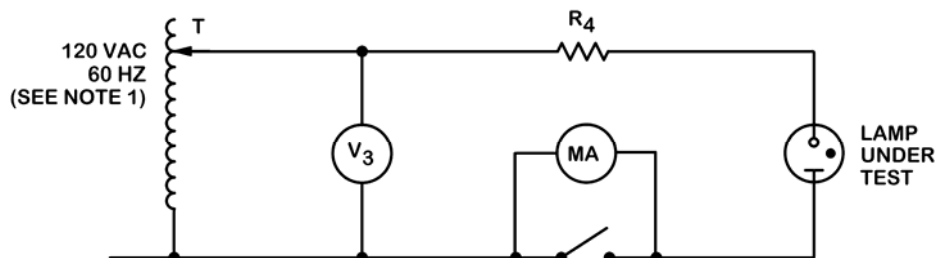
- R - Voltage divider resistors – as required.
- R₁ - Calibration resistor.
- R₂ - Photomultiplier load resistor.
- V₁ - Voltmeter – minimum 10 megohms input resistance.

FIGURE 3. Photomultiplier wiring diagram.

- R₃ - Voltage dropping resistor.
- V₂ - Voltmeter – minimum 10 megohms input resistance.

FIGURE 4. Calibration lamp wiring diagram.

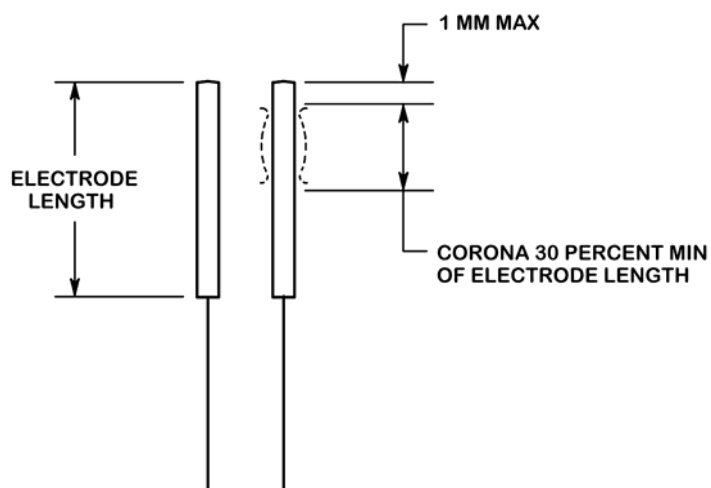
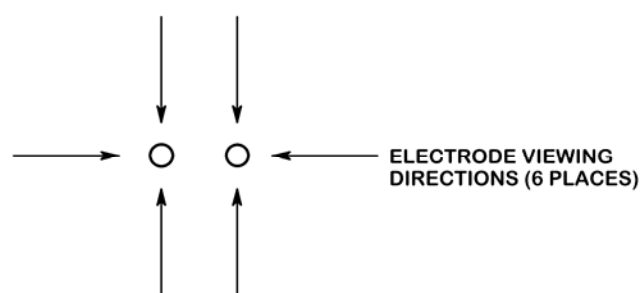
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- R_4 - Series resistor for glow lamp (see 3.4)
 T - Variable transformer.
 MA - Milliammeter – low reading.
 V_3 - Voltmeter – minimum 10 megohms input resistance.

NOTE:

1. AC test voltage shall be 120 VAC, 60 Hz sine wave, with harmonic content not more than 3 percent rms of the fundamental.

FIGURE 5. Test lamp wiring diagram.FIGURE 6. Corona distribution at electrode tips.FIGURE 7. Top view of electrodes.

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Custodians:

Army - CR
Navy - SH
Air Force - 99
DLA - GS

Preparing Activity:

DLA - GS2

(Project 6240-2010-002)

Review Activities:

Army - AR, CR4, MI
Navy - AS, CG, MC
Air Force - 71
DLA - IS

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST database at <https://assist.daps.dla.mil/>.