METRIC

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9 November 1988
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PERFORMANCE SPECIFICATION

LIGHTS, COMPOSITE, VEHICULAR (METRIC)

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

1. SCOPE

1.1 Scope. This specification covers two types of vehicular composite light assemblies each consisting of a service driving light, infrared driving light, blackout driving light, and a blackout marker light. The vehicular composite light assemblies are referred to herein as "light assemblies". The light assemblies are designed for use on military tracked vehicles equipped with nominal 24-volt (V) direct current (dc) electrical systems (see 6.1).

1.2 Classification. The light assemblies are of the following types, as specified (see 6.2):

Type I - Quick detachable.
Type II - Bolt-down base.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/BLUE, Warren, MI 48397-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document, or by letter.

AMSC N/A FSC 6220

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 documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATIONS

FEDERAL

A-A-52463	- Lamp Bulbs, Incandescent, Miniature, Single and Double

DEPARTMENT OF DEFENSE

MIL-L-3661	- Lampholders, Indicator Lights, Indicator-Light Housings,
MIL-C-13486	- Cable, Special Purpose. Electrical: Low-Tension. Heavy
MIL-F-13927	- Fungus Resistance Tests: Automotive Components.

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-193	- Painting Procedures and Marking for Vehicles, Construction Equipment and Material Handling Equipment.
MIL-STD-202	- Test Methods for Electronic and Electrical Component Parts.

MIL-STD-1184	- Electrical Components for Automotive Vehicles, Waterproofness Tests.
MIL-HDBK-454	- General Guidelines for Electronic Equipment.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

DRAWINGS

ARMY

7962265	- Lens, Headlamp Filter.
7962266	- Lens, Service Headlamp.
7972325	- Engineering Parts List.
8734273	- Procedure-Headlamp Adjustment.
10891601	- Headlamp Assembly.
10941378	- Headlamp Assembly.
10947046	- Headlamp Assembly.
12369000	- Chemical Agent Resistant Coatings (CARC) Paint Systems Index.

(Copies of these drawings are available from the U.S. Army Tank-automotive and Armaments Command, AMSTA-TR-E/BLUE, Warren, MI 48397-5000.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents that which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation (see 6.2).

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B117	- Standard Test Method of Salt Spray (Fog) Testing (DoD Adopted).

(Application for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive West Conshohocken, PA 19428-2959.)

SOCIETY OF AUTOMOTIVE ENGINEERS, INC. (SAE)

SAE J575	- Test Methods and Equipment for Lighting Devices and Components. For Use On Vehicles Less Than 2032 MM In Overall Width (DoD Adopted).
ANSI/SAE J578	- Color Specification (DoD Adopted).
ANSI/SAE AS478	- Identification Marking Methods (DoD Adopted).

(Application for copies should be addressed to the Society Of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096.)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ANSI/ASME B1.1	- Unified Inch Screw Threads (UN and UNR Thread Form) (DoD Adopted).

(Application for copies should be addressed to the American Society of Mechanical Engineers, 345 East 47th Street, New York, NY 10017.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes the applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.4.

3.2 Materials. Materials shall be as specified herein, and in referenced specifications, drawings, and standards (see 4.7.1).

3.2.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible in the manufactured product provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs (see 6.5.1).

3.3 Design and construction. Type I light assemblies shall conform to figure 1 or Drawings 10941378 or 10947046, as specified (see 6.2). Type II light assemblies shall conform to Drawing 10891601. All lamps of the light assemblies shall be of 28 V dc nominal design. The light assemblies shall be designed to provide plus or minus (±) 5 degrees (°) lateral and ± 5° vertical adjustment (see 4.7.1 and 4.7.2).

3.3.1 Standard parts. Military standard parts shall be used wherever applicable. Commercial standard parts may be used provided they are interchangeable without modification with the military standard parts they replace Government approval is required when commercial parts are used (see 4.7.2).

3.3.2 Interchangeability. To provide for interchangeability, light assemblies fabricated in accordance with this specification shall have external dimensions that conform to the applicable drawing or military standard. Electrical connectors and mounting dimensions and location, shall also conform to the requirements of the applicable drawings or military standard (see 4.7.2).

3.3.3 Threaded parts.

3.3.3.1 Screw threads. All screw threads shall conform to ASME B1.1 (see 4.7.1 and 4.7.2).

3.3.3.2 Coated threaded parts. All threads, except for electrical conducting parts, electrical terminals, and self-locking nuts shall be coated with antiseize compound (see 4.7.2).

3.3.4 Locking devices. Lockwashers, locknuts, or other approved locking devices shall be provided for locking threaded parts in conformance with the applicable drawing or military standard to prevent loosening of components (see 4.7.2).

3.3.5 Internal connections. All internal connections subject to loosening by vibration shall be provided with locking devices. Conductors shall be secured in such a manner as to prevent unwanted contact with moving parts or their becoming chafed by contact with stationary parts (see 4.7.2).

3.3.6 Lamp bulbs and sockets. Lamp-bulb sockets shall conform to the applicable requirements of MIL-L-3661. Lamps, except the sealed-beam units shall be in accordance with the applicable requirements of A-A-52463 (see 4.7.1 and 4.7.2).

3.3.7 Driving lights.

3.3.7.1 Sealed-beam lamps. The sealed-beam lamps shall be of the all-glass, two-filament type to provide high- and low-beam operation (see 4.7.2).

3.3.7.2 Clear lens. The clear lens of the driving light shall conform to Drawing 7962266 (see 4.7.1 and 4.7.2).

3.3.7.3 Filter lens. The filter lens of the infrared driving light shall be infrared and shall conform to Drawing 7962265 (see 4.7.1 and 4.7.2).

3.3.8 Blackout marker light. The front position markers shall emit white light and the filter lens shall be opaque except for the two Y-shaped openings (see 4.7.2).

3.3.9 Blackout driving light. The blackout driving light shall be constructed as shown on the applicable drawing or military standard (see 3.3 and 4.7.2).

3.3.10 Cable. Electrical cable shall conform to MIL-C-13486 (see 4.7.1 and 4.7.2).

3.3.11 Soldering. Soldering shall conform to the best commercial practices. MIL-HDBK-454 may be used as a guide (see 4.7.1 and 4.7.2).

3.4 Performance.

3.4.1 Functioning. When supplied with an input voltage of 28 V dc all lights of the light assembly shall operate without dimming or flickering (see 4.7.3).

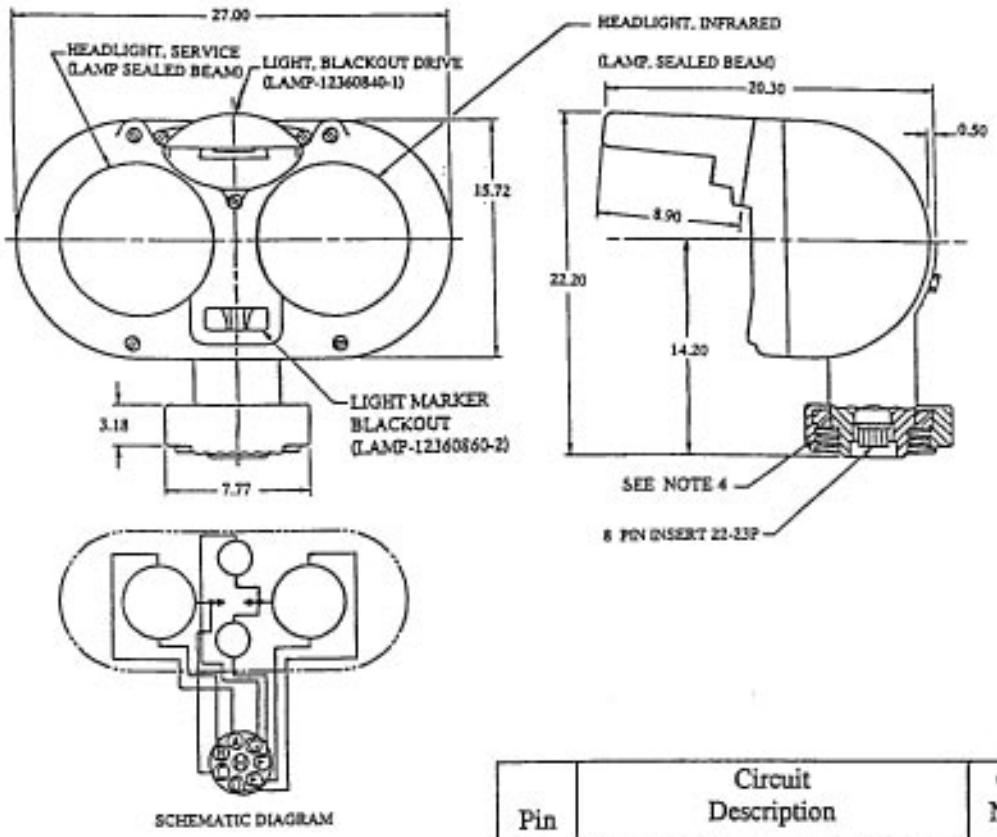
3.4.2 Sealed-beam lamps.

3.4.2.1 Candlepower. When supplied with an input voltage of 28 V dc, the sealed-beam lamps, both high and low beams, shall meet the candlepower requirements listed in tables I and II, 18 meters (m) from their source (see 4.7.2 and 4.7.4).

TABLE I. Lower beam candlepower values. 1/

Position (°)	Candlepower	
	Maximum	Minimum
1U to 90U	500	
H - L to R	750	
1D - V	1050	950
1 1/2 D - 3R to 3L	5000	
2D - 3R to 3L		2000
2D - 9R to 9L		1000
3D - 15R to 15L		500

1/ See 6.6.



Pin	Circuit Description	Circuit Number
A	Headlight Service (Low Beam)	18
B	Headlight, Service (High Beam)	17
C	Ground	91
D	Headlight, Infrared Low Beam	515
E	Headlight, Infrared High Beam	514
F	Light, Marker, Blackout	20
G	Light, Driving, Blackout	19
H	Dummy	-

NOTES:

1. Dimensions are in centimeters.
2. For parts see engineering parts list 7972325.
3. For details see Drawing 7972325.
4. Unless otherwise specified (see 6.2), threads shall be 2.75-4 ACME-2G (inch-pound).

FIGURE 1. Type 1: Quick detachable vehicular composite light.

TABLE II. Upper beam candlepower values. 1/

Position (°)	Candlepower Minimum
H - V	9000
H - 3L to 3R	7500
1D - 6L to 6R	5000
2D - 6L to 6R	5000

1/ See 6.6.

3.4.3 Blackout marker light. When supplied with an input of 28 V dc, the blackout marker light shall meet the requirements in 3.4.3.1 through 3.4.3.4 (see 4.7.5).

3.4.3.1 Visibility of beams. The two light beams emitted from each blackout marker light shall be individually visible up to 18 m. Beyond 18 m the light beams shall appear as a single point of light. The light beams shall be visible at a distance of 244 m and shall not be visible beyond 366 m.

3.4.3.2 Visibility from air.

3.4.3.2.1 Vehicle on 20 percent (%) downgrade. When the vehicle is on a 20% downgrade, the vertical angles of cutoff above the horizontal shall be the maximum practicable provided the single light effect of the marker shall not be visible from the air at more than 122 m above a horizontal line extending through the blackout marker light.

3.4.3.2.2 Vehicle on level road. When the vehicle is on a level road, the vertical angles of cutoff of the marker below the horizontal shall be such as not to cast a reflection on the road that would be visible from the air at a height of more than 122 m.

3.4.3.3 Horizontal visibility on road. When the vehicle is on a level road, the horizontal angles of cutoff shall be the maximum practicable but shall be not less than 60° right or left of the beam centerline at 30.5 m.

3.4.3.4 Color of light. The color of the transmitted light, as determined by SAE J575, shall be in accordance with the trichromatic coefficients given in table III (see 4.7.2 and 4.7.5).

TABLE III. Trichromatic coefficients.

Color designation	Trichromatic coefficients 1/		
	X	Y	Z
White dark	0.146	0.139	0.715

1/ The maximum deviation shall be 0.008.

3.4.4 Blackout driving light. When installed (see 6.7) and supplied with an input voltage of 28 V dc, the blackout driving light shall give a white light and beam that has a luminous intensity of not less than 25 candela and not more than 50 candela when measured in the most intense portion of the beam, 3 m from its source. Its luminous intensity shall decrease uniformly from 6 to 30.5 m from the light with the top of the light beam directed not less than 1° below the horizontal. The beam distribution on a level road at a point 30.5 m from the vehicle blackout driving light shall be 9 m wide. Beam candlepower values at various positions shall be as specified in table IV (see 4.7.2 and 4.7.6).

TABLE IV. Candlepower values for blackout driving light. 1/

Position (°)	Candlepower	
	Minimum	Maximum
Line H 2/		1
1D	Visual Cutoff	
2D - 9L to 9R	25	50
3D - 12L to 12R	13	25
4D - 18L to 18R	6	15
6D - 24L to 24R	2	8
8D - 30L to 30R	1	4

1/ All beam candlepower readings shall be made at 3 m. A tolerance of ± 1/2° shall be allowed for any position.

2/ Line H - Horizontal line at height of bottom of slot in shield.

3.4.5 Environmental.

3.4.5.1 Temperature cycling. The light assembly shall withstand exposure to temperatures as high as 85 degrees Celsius (°C) and as low as -55°C and to the shock of alternate exposures to these extremes (see 4.7.7).

3.4.5.2 Waterproofness. The light assembly shall evidence no leakage, operational or mechanical damage during and after total submersion in a saline solution while supplied with 28 V dc (see 4.7.8).

3.4.5.3 Vibration resistance. After the light assembly, with sealed lamps and miniature lamps removed, is exposed to a simple harmonic motion having an amplitude of not more than 0.76 millimeters (mm) (1.5 mm maximum total excursion) through a frequency range of 10 to 55 cycles per second in a sweep time of 1 minute, the light assembly shall meet the requirements of 3.4.1 and 3.4.5.2 (see 4.7.9).

3.4.5.4 Shock resistance. After exposure to sawtooth pulses having a peak value of 30 gravity units (g) and a duration of 11 milliseconds (ms), the light assembly shall meet the requirements of 3.4.1 and 3.4.5.2 (see 4.7.10).

3.4.5.5 Fungus resistance. After exposure to conditions favorable to fungal growth, the light assembly shall meet the requirements of 3.4.1 and 3.4.5.2 (see 4.7.11).

3.4.5.6 Corrosion resistance. After exposure to salt laden atmosphere, the light assembly shall meet the requirements of 3.4.1 (see 4.7.12).

3.5 Finish. Unless otherwise specified (see 6.2), cleaning, treating priming, plating, and painting of parts of the light assembly shall conform to the applicable provisions of MIL-STD-193. All exposed parts requiring paint topcoat shall be topcoated with a paint conforming to 12369000 for color green 383 (see 4.7.2).

3.6 Markings. The Part or Identifying Number (PIN) (see 6.2) and manufacturer's name or trademark shall be legibly stamped in yellow color on the interior of the housing of the light assembly in accordance with the applicable provisions of SAE AS478. Spare parts of the assembly which will be serviced and stocked for Army Field Service shall have a PIN permanently marked thereon. The light assembly's PIN, shall be stamped in yellow or a tag affixed to the complete lamp assembly for storage or handling identification (see 4.7.2).

3.7 Workmanship. Workmanship shall be of a quality which will assure a product free of burrs, scratches, rust, and sharp edges (see 4.7.2).

4. VERIFICATION

4.1 Material and design. Conformance to 3.2 and 3.3 shall be determined by inspection of contractor records providing proof or certification that material and design conform to requirements. Applicable records shall include drawings, specifications, design data, receiving inspection records, processing and quality control standards, vendor catalogs and certifications, industry standards, test reports and rating data.

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

a. First article inspection (see 4.4).
b. Conformance inspection (see 4.5).
c. Control tests (see 4.6).

4.3 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed under the following ambient conditions:

a. Temperature: 25 ± 10°C.
b. Atmospheric pressure: Site pressure.
c. Relative humidity: Uncontrolled room ambient.

4.3.1 Laboratory driving light aiming. Proper aiming of the driving lights (without lens) for laboratory testing shall be as follows:

a. The greatest light intensity of the lower beam of the sealed-beam lamp shall fall 690 mm below the horizontal line on a screen placed 7.6 m from the lamp source.
b. Lateral adjustment shall be such that the center of the highest light intensity on the screen shall be straight ahead with a tolerance of ±76 mm on either side of the vertical plane.

4.3.2 Vehicle driving light aiming. Proper aiming of the driving lights (without lens) installed on a vehicle shall be specified on Drawing 8734273.

4.4 First article inspection. When first article is required (see 3.1), first article inspection shall be performed on first article samples (see 6.2 and 6.4). Unless otherwise specified (see 6.2), first article inspection shall include the inspections specified in table V.

TABLE V. Classification of inspections.

Title	Requirement	Inspection	Conformance inspection			Con-trol tests
			First article	Exami-nation	Tests	
Materials and construction	3.2, 3.3, 3.3.3.1, 3.3.6, 3.3.7.2, 3.3.7.3, 3.3.10, and 3.3.11	4.7.1	X			
Examination	3.3 thru 3.3.11, 3.4.2.1, 3.4.3.4, 3.4.4, 3.5, 3.6, and 3.7	4.7.2	X	X		X
Functioning	3.4.1	4.7.3	X		X	
Sealed-beam lamps	3.4.2	4.7.4	X			X
Blackout driving light	3.4.3	4.7.5	X			
Blackout marker light	3.4.4	4.7.6	X			
Temperature cycle	3.4.5.1	4.7.7	X			
Waterproofness	3.4.5.2	4.7.8	X		X	
Vibration resistance	3.4.5.3	4.7.9	X			X
Shock resistance	3.4.5.4	4.7.10	X			X
Fungus resistance	3.4.5.5	4.7.11	X			
Corrosion resistance	3.4.5.6	4.7.12	X			

4.5 Conformance inspection. Conformance inspection shall be conducted on the sample items and shall include the examination of 4.5.1 and the tests of 4.5.2 (see 6.2). Noncompliance with any of the specified requirements in sections 3 and 5 shall be cause for rejection.

4.5.1 Examination. The sample items shall be examined for the characteristics specified in table VI (see 6.2).

ABLE VI. Examination of characteristics.

Category	Defect	Method of inspection
Major:		
101	Dimensions not as specified or out of tolerance, interchangeability affected (see 3.3, 3.3.1, 3.3.2, and 3.3.3.1).	SIE 1/
102	Dimensions not as specified or out of tolerance, interchangeability not affected (see 3.3).	SIE
103	Design and construction not as specified (see 3.3, 3.3.3.2, 3.3.4, and 3.3.5).	Visual
104	Required components not as specified (see 3.3.6 thru 3.3.9).	Visual
105	Cable or terminal not as specified (see 3.3.10).	Visual
106	Soldering not as specified (see 3.3.11).	Visual
107	Candlepower requirements not as specified (see 3.4.2.1 and 3.4.4).	Visual
108	Required color not as specified (see 3.4.3.4).	Visual
109	Finish not as specified (see 3.5).	Visual
110	Marking not as specified (see 3.6).	Visual
111	Workmanship not as specified, serviceability affected (see 3.7).	Visual
112	Workmanship not as specified, appearance affected (see 3.7).	Visual

1/ SIE = Standard Inspection Equipment

4.5.2 Conformance inspection tests. Subsequent to the examination of 4.5.1, the sample items shall be subjected to the conformance inspection tests specified in table V. Testing shall be performed in the order listed therein.

4.6 Control tests. Sample items selected for control tests shall be new and examined in accordance with 4.5.1 prior to subjecting the sample items to the control tests specified in table V (see 6.2). Tests shall be performed in the following order: 4.7.4, 4.7.10, and 4.7.9.

4.7 Methods of inspection.

4.7.1 Materials and construction. Conformance to 3.2, 3.3, 3.3.3.1, 3.3.6, 3.3.7.2, 3.3.7.3, 3.3.10, and 3.3.11, shall be determined by inspection of contractor records providing proof or certification that design, construction, processing, and materials conform to requirements. Applicable records shall include drawings, specifications, design data, receiving inspection records, processing and quality control standards, vendor catalogs and certifications, industry standards, test reports, and rating data.

4.7.2 Examination. Conformance to 3.3 through 3.3.11, 3.4.2.1, 3.4.3.4, 3.4.4, 3.5, 3.6, and 3.7, shall be determined by the examination specified in table VI.

4.7.3 Functioning. To determine conformance to 3.4.1, the composite light assembly shall be installed in a suitable holder, connected to a 28-V (nominal) dc power source, and then visually examined.

4.7.4 Sealed-beam lamps. To determine conformance to 3.4.2.1, sealed-beam lamps shall be tested in accordance with the photometry test method specified in SAE J575. The photometric tests shall be made at the design voltage (28 V dc) of the sealed-beam unit and with a photometer located at a distance 18 m from the lamp.

4.7.5 Blackout marker light. To determine conformance to 3.4.3, the blackout marker shall be connected to a 28-V dc power source and tested by any practical method to determine visibility specified in 3.4.3. To determine conformance 3.4.3.4, the trichromatic coefficients shall be determined at the design voltage (28 V dc) of the blackout marker light in accordance with SAE J578.

4.7.6 Blackout driving light. To determine conformance to 3.4.4, the blackout driving light shall be connected to a 28-V dc power source and tested in accordance with the photometry test method specified in SAE J575.

4.7.7 Temperature cycling. To determine conformance to 3.4.5.1, the light assembly shall be subjected to the temperature cycling test specified in test condition A, method 107 of MIL-STD-202.

4.7.8 Waterproofness. To determine conformance to 3.4.5.2, the light assembly shall be subjected to the waterproofness test specified for type II, class 1, in method 100, procedure 1 of MIL-STD-1184.

4.7.9 Vibration resistance. To determine conformance to 3.4.5.3, the light assembly, with sealed lamps and miniature lamps removed, shall be mounted on a vibrating machine and subjected to a simple harmonic motion having a maximum amplitude of 0.76 mm (1.5 mm maximum total excursion) through a frequency range of 10 to 55 to 10 cycles per second. The frequency shall vary throughout the entire frequency range once each minute. The vibration shall be applied for 1 hour in each of the directions of the three major axes after which the sealed units and lamps shall be replaced. Subsequently, the light assembly shall be tested in accordance with 4.7.3 and 4.7.8.

4.7.10 Shock resistance. To determine conformance to 3.4.5.4, the light assembly shall be subjected to the shock resistance test specified in method 213, test condition K, of MIL-STD-202. The impact shall be produced three times in each of the directions of the three major axes of the light assembly. Subsequently, the light assembly shall be tested in accordance with 4.7.3 and 4.7.8.

4.7.11 Fungus resistance. To determine conformance to 3.4.5.5, the light assembly shall be subjected to a fungus resistance test as specified for class 2, method B of MIL-F-13927. Subsequently, the light assembly shall be tested in accordance with 4.7.3 and 4.7.8.

4.7.12 Corrosion resistance. To determine conformance to 3.4.5.6, the light assembly shall be subjected to the salt spray (fog) test as specified in ASTM B117, for a period of 200 hours. Subsequently, the light assembly shall be tested in accordance with 4.7.3.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of material is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency or within the Military Department or Defense Agency, or within the Military Department's System Command. 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.)

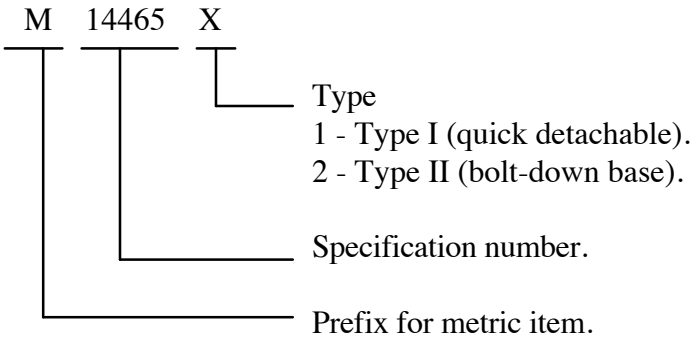
6.1 Intended use. Light assemblies covered by this specification are intended for use on military tracked vehicles to provide general illumination ahead of the vehicle for the safe operation of the vehicle during darkness and other conditions of reduced visibility. The two types covered by this specification are similar except for their base assemblies. The light assemblies are designed for use with sealed-beam units and lamp bulbs having a design voltage of 28 V dc.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Type of light assembly required (see 1.2).
c. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.2.1 and 2.3).
d. If first article is required (see 3.1).
e. Number of applicable military standard or drawing if type I light assembly is required (see 3.3).

f. Finish, if other than as specified (see 3.5).
g. PIN (see 3.6).
h. First article inspection, if other than as specified (see 4.4).
i. Sample size for conformance inspection examination and tests (see 4.5.1).
j. Conformance inspection acceptance criteria (see 4.5.1).
k. Control test sample size, frequency of tests, and disposition of lots covered by the sample size and of defective items (see 4.6).
l. Packaging requirements (see 5.1).
m. If type I light base threads are other than as specified (see figure 1).

6.3 Part or identifying number (PIN). The PINs to be used for lights acquired to this specification are created as follows:



6.4 First article. When first article inspection is required, the contracting officer should provide specific guidance to offerors whether the first article samples should be a first article sample, preproduction sample, initial production sample, first production item, or standard production item from the contractor's current inventory and for each inspection category specify the number of samples to be inspected and the specific tests to be performed on each sample. The contracting officer should also 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 provide 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. Bidders should not submit alternate bids unless specifically requested to do so in the solicitation.

6.4.1 Guidance on applying first article. When a first article sample is required, at least four light assemblies should be subjected to first article inspection. First article samples should be inspected as specified in table V and Tests should be performed in the order specified in table VII.

TABLE VII. Order of first article testing.

Sample	Test	Requirement	Test
1	Functioning	3.4.1	4.7.3
	Sealed-beam lamps	3.4.2	4.7.4
	Blackout driving light	3.4.4	4.7.6
	Blackout marker light	3.4.3	4.7.5
	Vibration resistance	3.4.5.3	4.7.9
	Functioning	3.4.1	4.7.3
	Waterproofness	3.4.5.2	4.7.8
	Shock resistance	3.4.5.4	4.7.10
	Functioning	3.4.1	4.7.3
	Waterproofness	3.4.5.2	4.7.8
2	Functioning	3.4.1	4.7.3
	Sealed-beam lamps	3.4.2	4.7.4
	Blackout driving light	3.4.4	4.7.6
	Blackout marker light	3.4.3	4.7.5
	Corrosion resistance	3.4.5.6	4.7.12
	Functioning	3.4.1	4.7.3
3	Functioning	3.4.1	4.7.3
	Sealed-beam lamps	3.4.2	4.7.4
	Blackout driving light	3.4.4	4.7.6
	Blackout marker light	3.4.3	4.7.5
	Waterproofness	3.4.5.2	4.7.8
	Temperature cycling	3.4.5.1	4.7.7
	Waterproofness	3.4.5.2	4.7.8
	Functioning	3.4.1	4.7.3
4	Functioning	3.4.1	4.7.3
	Sealed-beam lamps	3.4.2	4.7.4
	Blackout driving light	3.4.4	4.7.6
	Blackout marker light	3.4.3	4.7.5
	Fungus resistance	3.4.5.5	4.7.11
	Functioning	3.4.1	4.7.3
	Waterproofness	3.4.5.2	4.7.8

6.5 Definitions.

6.5.1 Recovered materials. “Recovered materials” means materials that have been collected or recovered from solid waste (see 6.5.2).

6.5.2 Solid waste. "Solid waste" means (a) any garbage, refuse, or sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; and (b) other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. It does not include solid or dissolved material in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Clean Water Act, (33 U.S.C. 1342 et seq.), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) (Source: Federal Acquisition Regulations, section 23.402).

6.6 Aiming tolerance. When marking photometric tests of the sealed unit itself, an aiming tolerance of $\pm$ 0.25° and an additional tolerance of $\pm$ 20% of candlepower at the test point should be allowed for manufacturing variations.

a. One degree is equal to 533 mm at 30.5 m.
b. For photometric test point location information refer to SAE J575.

6.7 Blackout driving light. Due to tolerance allowed manufacturers of lamp bulbs, it is suggested that lamp bulbs be installed so that the lamp bulb filaments bisect the vertical centerline of the blackout drive light lens.

6.8 Subject term (key word) listing.

Blackout
Driving
Filter
Infrared
Lens
Sealed beam

Custodians:
Army - AT
Navy - MC

Review Activity:
DLA - GS

Preparing Activity:
Army - AT

(Project 6220-1087)