METRIC

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SUPERSEDING
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COMMERCIAL ITEM DESCRIPTION
MARKER LIGHT, PERSONAL DISTRESS

The General Services Administration has authorized the use of this commercial item description as a replacement for MIL-L-38217D for all federal agencies.

1. SCOPE

1.1 Scope. This commercial item description (CID) covers one type of personal distress marker light.

1.2 Intended use. The personal distress marker light is intended for use as a high intensity visual distress signal by air-crew members who require rescue after an unscheduled abandonment of aircraft. The conditions of rescue may include marine environments. The distress marker light shall be capable of transmitting high intensity infrared light in situations where concealment from hostile forces is required.

2. SALIENT CHARACTERISTICS

2.1 Configuration. The complete distress marker light shall consist of a case, switch, lens, flashtube module, infrared filter and flash guard with integral blue filter. The distress marker light shall be powered by not less than two batteries (see 2.1.7). The light shall be furnished complete, except that the batteries will not be included. When specified, an optional canvas carrying case with lanyard shall be provided (see 6.2).

2.1.1 Case. The marker light case shall be fabricated of a high impact resistant, plastic material that is lightweight and resistant to corrosion and fungal growth. The case shall provide a means of attaching a cord for use as a lanyard. A lanyard having a length of not less than 0.5 meters shall be provided.

2.1.2 Switch. A switch shall be mounted on the case. The switch shall be a positive engagement type that can be switched on or off with one hand. The switch shall be protected from accidental activation. The switch shall be made of corrosion-proof material. The switch shall perform properly during a cycle test of 2000 successive operations.

2.1.3 Lens. The lens shall be constructed of a high-impact resistant, transparent, plastic material.

2.1.4 Flashtube. A capacitor-discharge flashtube shall be the source of radiation.

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2.1.5 Infrared filter. The infrared filter shall be capable of being securely positioned over the lens. There shall be no radiation leakage at wavelengths below 800nm at the interface of the infrared filter and the distress marker light body when the infrared filter is in place over the lens. The infrared filter shall operate within a temperature range of -50°C to +50°C without degradation of wavelength transmission by more than ±2% of the values specified below at the extremes of the range respectively. The infrared filter shall allow transmission of energy in the electromagnetic spectrum at wavelengths beginning at 800nm and continuing to 1000nm.There shall be no visually detectable radiation of the electromagnetic spectrum passing through the infrared filter at wavelengths between 300nm and 780nm. At wavelengths above 780nm, radiant energy may begin to pass through the filter rising in transmittance to 60% (minimum) of incident radiation at wavelengths above 900nm. The infrared transmitting region of the filter shall consist of an area not less than 600mm^2, covering the top surface of the filter. The infrared transmitting area may be greater and extend into the sides of the filter. Transmittance of incident radiant flux (in the infrared range specified above) through the filter shall be at a ratio not less than 1.00 to 0.75 (75%) when checked at any point on the filter, throughout the operating temperature range as specified above.

2.1.6 Flash guard. A flash guard shall be included as an integral part of the distress marker light. The flash guard shall prevent light from being observed unless the beam is aimed directly toward the observer. The light emitted from the flash guard shall be blue so as to distinguish it from small arms ground fire. The blue filter shall automatically position itself when operation using the flash guard is selected. The blue filter shall pass 50% minimum of the blue content of the light.

2.1.7 Batteries. The distress marker light shall operate with standard 1.5 volt, alkaline “AA” batteries. The light shall be constructed so that the batteries are easily replaceable without using tools.

2.2 Performance. The distress marker light shall provide intermittent flashes of white light. The distress marker light shall provide intermittent flashes of light in the infrared spectrum using an integral filter. The distress marker light shall include an integral flash guard. The flash guard shall include an integral blue filter. The infrared filter and the flash guard shall stow in such a manner that they do not interfere with the operation of the distress marker light when they are not being used. The flash rate shall be 50 ± 10 flashes per minute. After 2 hours of continuous operation, the frequency shall not be less than 40 flashes per minute and the intensity shall be at least 60% of values shown in table I. The pulse width of the flashes shall be 13 ± 2 micro seconds, minimum. The beam width of the visible light shall be 180° as measured on a plane perpendicular to the long axis of the lens. The intensity of the light, using the effective intensity photometric method, shall be as specified in table I. The distress marker light shall operate continuously for a minimum of 8 hours, meeting all performance requirements, using one set of new (never used) batteries.

TABLE I. Minimum angular beam coverage light intensity.

Angular Beam Coverage (Long and Short Axis of Lens)	Effective Intensity
40° (20° each side of lens zenith)	1.80
110° (55° each side of lens zenith)	0.95
150° (75° each side of lens zenith on short axis)	0.65
180° (90° each side of lens zenith on long axis)	0.65
Head-on intensity	1.80

2.2.1 Underwater operation. The distress marker light assembly shall be waterproof to a depth of 15 meters.

2.2.2 Altitude. The distress marker light shall meet all performance requirements after being exposed to the conditions experienced in an aircraft ascending from sea level to an altitude of 25000 meters at a rate of 300 meters per minute, and will remain at that altitude for a minimum of 1 hour and then descend from 25,000 meters to sea level in 8 minutes.

2.2.3 Explosive decompression. The distress marker light shall not deform and shall meet all performance requirements when exposed to the conditions experienced during an ejection from an aircraft, which was pressurized to an altitude of 3000 meters and was flying at an altitude of 25,000 meters at the time of the ejection.

2.2.4 Room temperature operation. The light shall emit intermittent flashes of light at an initial frequency of 50 ±10 flashes per minute. After 2 hours of continuous operation , the frequency shall not be less than 40 flashes per minute, and the minimum angular beam coverage light intensity shall be at least 60% of values specified in table I.

2.2.5 High temperature operation. The light shall not crack when subjected to temperatures of 70° ±2°C for 8 hours and 50° ±2°C for 6 hours. After subjection to these temperatures, the light shall have a frequency of not less than 40 flashes per minute. When the temperature of the light returns to room temperature, there shall be no distortions of the case. After the high temperature test the light shall meet the intensity and flash rate requirements of 2.2 and the underwater operation requirements of 2.2.1.

2.2.6 Low temperature operation. The light shall withstand a temperature of -50 ±2°C for a period of 8 hours without cracking, distorting, or separating at the seams. After the 8-hour period, the light shall be subjected to room temperature for a maximum period of 6 hours . At the end of the 6-hour period, the light shall meet the requirements specified in 2.2 and 2.2.1. In addition, the switch cycling requirement specified in 2.1.2 shall be performed.

2.2.7 Salt spray. The distress marker light shall show no signs of corrosion or other damage when tested in accordance with ASTM B117 for a period of 96 hours.

2.2.8 Vibration. The distress marker light shall meet all performance requirements when tested in accordance with ASTM D3580-95 using the following parameters: a double amplitude of 0.76 ± 0.15 mm at a frequency that is varied uniformly from 10 to 55 hertz and returned to 10 hertz in approximately 1 minute cycles. The vibration shall be applied for a period of 1 hour in each of three mutually perpendicular planes.

2.2.9 Shock. The distress marker light shall meet all performance requirements when tested in accordance with ASTM D3332-93 using the following parameters: horizontally, major axis (three shocks each direction for a total of six shocks); horizontally, minor axis (three shocks each direction for a total of six shocks); and vertically, (three shocks each direction for a total of six shocks). All shocks shall be performed at 245 meters per second squared.

2.2.10 Compression. The distress marker light shall meet all performance requirements after being subjected to a 22 kilogram weight on any plane surface over an area of 25 mm by 76 mm.

2.2.11 Drop. The distress marker light shall meet all performance requirements after being dropped on its lens surface onto a seasoned slab of concrete from a height of 1.5 meters.

2.2.12 Light Leakage. There shall be no leakage of visible light from any part of the distress marker when operated in the infrared mode.

2.3 Dimensions. The finished dimensions of the distress marker light shall be no greater than 115 mm high by 65 mm wide by 30 mm thick.

2.4 Materials. The use of any coatings (protective or otherwise) that will crack, chip, scale, or fade with age or exposure to atmospheric and environmental conditions shall not be permitted. Materials used in the construction of the distress marker light shall not support fungal growth.

3. REGULATORY REQUIREMENTS

3.1 Recycled materials. Manufacturers are encouraged to use recovered or reclaimed raw materials in accordance with Public Law 94-580. To be used, recycled materials must be completely reprocessed into essentially new raw materials. Rebuilt or reconditioned components or materials which have not been fully reprocessed are not acceptable.

4. PRODUCT CONFORMANCE PROVISIONS

4.1 Product conformance. The products provided shall meet the salient characteristics of this commercial item description; conform to the producer's own drawings, specifications, standards and quality assurance practices; and be the same product offered for sale in the commercial market. The government reserves the right to require proof of such conformance.

4.2 Warranty. Unless otherwise specified in the contract or purchase order, the manufacturer's standard commercial warranty shall apply.

5. PACKAGING

5.1 Preservation, packing and marking shall comply with ASTM D3951, unless otherwise specified in the contract or purchase order.

6. NOTES
(Information in this section is for guidance only, This section contains information of general or explanatory nature, which is helpful, but is not mandatory.)

6.1 Referenced documents.

ASTM D3332 Standard Test Methods for Mechanical - Shock Fragility of Products, Using Shock Machines
ASTM D3580 Standard Test Methods of Vibration (Vertical Sinusoidal Motion) Test of Products
ASTM B117 Standard Practice for Operating Salt Spray (Fog) Testing Apparatus
ASTM D3951 Standard Practice for Commercial Packaging

(Copies may be obtained from American Society for Testing and Materials, 100 Barr Harbor Dr. West Conshohocken, PA 19428-2959.)

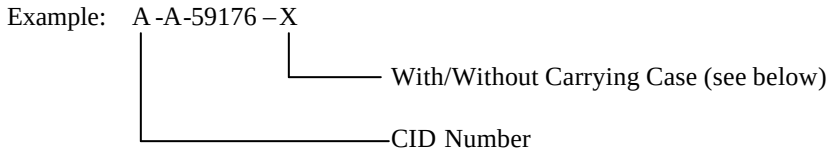
6.2 Ordering data. Acquisition documents must specify the following:

a. Title, number and date of this document.
b. Optional canvas carrying case, if required (see 2.1 and 6.4).

6.3 National stock number (NSN). Products known to conform to the requirements of this CID are listed below. Manufacturers of these products are identified by Commercial and Governmental Entity (CAGE) code.

NSN	Cage	Name	Part Number
6230-01-448-8340	8A849	FEDCAP	MS2000M w/carrying case
6230-01-411-8535	18560	ACR Electronics	MS2000M

6.4 Part identification number (PIN). The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor.



CID Number	With Carrying Case	Without Carrying Case
A-A-59176	0	1

MILITARY INTERESTS:

Custodians:
Army - CR4
Navy - AS
Air Force - 99
DLA IS

Reviewers:
Navy - SH, YD

CIVIL AGENCY COORDINATING ACTIVITY:
GSA - FSS

PREPARING ACTIVITY
DLA - IS

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