

MIL-F-20363B (MU)  
31 May 1968  
SUPERSEDING  
MIL-F-20363A (MU)  
20 December 1966

## MILITARY SPECIFICATION

### FLARE, AIRCRAFT, PARACHUTE, M8A1 PARTS FOR, AND LOADING, ASSEMBLING AND PACKING

#### 1. SCOPE

1.1 This specification covers the parts manufacture, the loading, assembling and packing for one type of aircraft, parachute suspended flare designated as the M8A1.

#### 2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposals, form a part of this specification to the extent specified herein.

#### SPECIFICATIONS

##### FEDERAL

QQ-T-191 - Terne Sheet Long and Short Terne  
QQ-T-425 - Tinsplate Hot Dip and Electrolytic

##### MILITARY

MIL-P-223 - Powder, Black  
MIL-A-2550 - Ammunition and Special Weapons; General Specification for  
MIL-P-20334 - Pyrotechnics, Specification for White and Colored Compositions  
MIL-I-45607 - Inspection Equipment, Supply and Maintenance of

#### STANDARDS

##### MILITARY

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes (ABC-STD-105)

FSC: 1370

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- MIL-STD-109 - Quality Assurance Terms and Definitions
- MIL-STD-286 - Propellants, Solid: Sampling, Inspection, and Testing
- MIL-STD-1168 - Lot Numbering of Ammunition
- MIL-STD-1234 - Pyrotechnics: Sampling, Inspection and Testing
- MIL-STD-1235 - Single and Multilevel Continuous Sampling Procedures and Tables for Inspection by Attributes

**DRAWINGS**

**U. S. ARMY MUNITIONS COMMAND**

- 9217950 - Flare, Aircraft, Parachute, M8A1, Assembly
- 8864172 - Container, Ammunition, Fiber, M4OA2 for Flare, Aircraft, Parachute, M8A1
- 8864173 - Box, Wirebound, Packing, Ammunition for Aircraft, Parachute, Flare M8A1 in Fiber Container M4OA2

**PUBLICATIONS**

**U. S. ARMY MUNITIONS COMMAND**

ET - 9217950 - Equipment Tabulation Number

(Copies of specifications, standards, drawings and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

**3. REQUIREMENTS**

3.1 Material.- Materials and parts shall be in accordance with applicable drawings and specifications.

3.2 Assembly.- The flare assemblies shall comply with all requirements specified on Drawing (dwg.) 9217950 and with all requirements specified in applicable specifications.

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### 3.3 Moisture content (see 4.3.3.1)

3.3.1 The moisture content of the flare composition and first fire composition at the loading station at time of loading shall not exceed 0.1 percent when tested as specified in 4.4.1.1 or 4.4.1.2.

3.3.2 The moisture content of the paper and paper products components of the flare assembly at the loading station at time of loading shall not exceed 6 percent when determined as specified in 4.4.1.3.

### 3.4 Strength of base block and suspension cable

3.4.1 Base block and suspension cable connection.- The suspension cable connection to the base block shall withstand an 1,800 pound minimum (min.) disassembly force without separation when tested as specified in 4.4.2.

3.4.2 Thimble or suspension wire spool connection to suspension cable.- The thimble or the suspension wire spool connection to the suspension cable shall withstand an 1,800 pound minimum disassembly force without separation when tested as specified in 4.4.2.

3.5 Spring embrittlement of release spring (see dwg. 9217922).- The spring shall not break when extended to the minimum (min.) point of permanent distortion when tested as specified in 4.4.5.

3.6 Functioning.- The flare assembly shall ignite and comply with the following requirements when tested in accordance with 4.4.4. Test shall be performed at a Government Proving Ground.

3.6.1 Parachute.- The parachute shall not separate from the assembly, remain partially open, or delay in opening so that the free fall of the assembly exceeds 100 feet.

3.6.2 Ignition delay.- The ignition delay of the flare assembly after release from the aircraft launching tube shall be not more than eight (8) seconds.

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3.6.3 Flare charge burning.- The flare charge shall burn the minimum required time without any excessive physical breakup of the flare.

3.7 Workmanship.- All parts and assemblies shall be fabricated, finished and loaded in a thorough, workmanlike manner. They shall be free of burrs, chips, sharp edges, cracks, surface defects, dirt, grease, rust, solder flux, corrosion products and other foreign matter. The cleaning method used shall not be injurious to any part nor shall the parts be contaminated by the cleaning agent. Exterior surface coatings shall be continuous, except for a few light scratches not exposing base material. All required markings shall be neat and sharply defined.

3.8 First article inspection.- This specification makes provisions for first article inspection. Requirements for the submission of first article samples by the contractor shall be as specified in the contract.

#### 4. QUALITY ASSURANCE PROVISIONS

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 own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements. Reference shall be made to MIL-STD-109 to define terms used herein. The provisions of MIL-A-2550 shall apply.

4.1.1 Submission of product.- At the time the completed lot of product is submitted to the Government for acceptance the contractor shall supply the following information accompanied by a certificate which attests that the information provided is correct and applicable to the product being submitted:

- a. A statement that the lot complies with all quality assurance provisions specified within this specification.
- b. Number of units of product inspected.

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- c. Results obtained, by defect code, for all inspections performed.
- d. Drawing, specification number and date, together with an identification and date of changes.
- e. Certificates of analysis on illuminant composition, quickmatch composition, black powder and all other associated ingredients; certificates of conformance on all other material when such material is controlled by Government or commercial specifications referenced in any of the contractual documents.
- f. Number of items in the lot.
- g. Date submitted.
- h. A statement that the components and assemblies were dried and assembled as required by the drawings.

The certificate shall be signed by a responsible agent of the certifying organization. The initial certificate submitted shall be substantiated by evidence of the agent's authority to bind his principal. Substantiation of the agent's authority will not be required with subsequent certificates unless, during the course of the contract, this authority is vested in another agent of the certifying organization.

#### 4.2 First article inspection

4.2.1 Submission.- The contractor shall submit a first article sample (see 6.1c) as designated by the contracting officer for evaluation in accordance with the provisions of 4.2.2. The first article sample shall consist of the following quantities of inert and loaded parts, sub-assemblies and assemblies which have been produced by the contractor or furnished by a supplier and which have been manufactured using the same production processes, procedures and equipment which will be used in fulfilling the contract:

- a. Twenty-five (25) complete sets of inert parts (i.e. 25 each of every inert component and inert sub-assembly).
- b. Thirty-two (32) loaded assemblies completely packaged and sealed as required by the applicable drawings.
- c. Twenty (20) illuminant assemblies.

All parts and materials, including packaging and packing components, shall be obtained from the same source of supply as will be used in regular production. Prior to submission, the contractor shall inspect the sample to the degree necessary to assure that it conforms to the requirements of the contract and he shall submit a

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record of this inspection with the sample, including statements of findings and certificates of conformance of materials (see 4.1.1e). A sample containing known defects shall not be submitted unless specifically authorized by the contracting officer. A first article sample, or portion thereof, as directed by the contracting officer shall also be submitted whenever there is a lapse in production for a period in excess of 90 days, or whenever a change occurs in manufacturing process, material used, drawing or specification such as to significantly affect product uniformity as determined by the Government. Unless otherwise directed by the contracting officer, loaded components shall not be submitted for any test until the inert component first article has been accepted.

4.2.2 Inspections to be performed

4.2.2.1 Inert parts.- The inert parts submitted in accordance with 4.2.1a will be subjected by the Government to any or all of the applicable examinations and tests specified in 4.3.2 and 4.3.3 of this specification and any or all requirements of the applicable drawings.

4.2.2.1.1 Rejection.- If any inert component or sub-assembly fails to comply with any of the applicable requirements, the first article sample shall be rejected. The Government reserves the right to terminate its inspection upon any failure of an inert component or sub-assembly to comply with any of the stated requirements.

4.2.2.2 Loaded assemblies.- The loaded assemblies submitted in accordance with 4.2.1b will be subjected by the Government to functioning test at the proving ground as specified in 4.3.3.4.

4.2.2.2.1 Rejection.- If during the performance of the test specified in 4.3.3.4, a defect occurs, the first article sample shall be rejected. The Government reserves the right to discontinue testing upon encountering a basis for rejection.

4.2.2.3 Illuminant assemblies.- The illuminant assemblies submitted in accordance with 4.2.1c will be subjected by the Government to the test specified in 4.3.3.3.

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4.2.2.3.1 Rejection.- If during the performance of the test specified in 4.3.3.3 a defect occurs, the first article sample shall be rejected. The Government reserves the right to discontinue testing upon encountering a basis for rejection.

#### 4.3 Inspection provisions

4.3.1 Lot formation.- The term "lot" as used throughout this specification refers to an inspection lot, which is defined as an essentially homogeneous collection of units of product from which a representative sample is drawn and inspected to determine conformance of the lot with applicable requirements. The sample selected shall represent only that quantity of units from which the sample was drawn and shall not be construed to represent any prior or subsequent quantities presented for inspection. Homogeneity shall be considered to exist provided the lot has been produced by one manufacturer, in one unchanged process, in accordance with the same drawings, same drawing revisions, same specifications and same specification revisions. Changes to the process, specifications, or drawings not affecting safety, performance, interchangeability, or storage, as determined by the Government, shall not be deemed to alter the homogeneity of the lot. Inspection lots shall comply with MIL-STD-105. Unless otherwise approved by the contracting officer the inspection lot size of end items deliverable under the contract shall be not less than the smallest weekly estimate of quantities contractually scheduled for production during the contract period nor more than the largest monthly quantity contractually scheduled for delivery during the contract period. Inspection lots of components or sub-assemblies, other than the items of delivery, shall be homogeneous and of a size mutually convenient to both the contractor and the Government inspector. Lot numbering, as required, shall be in accordance with MIL-STD-1168. Each lot of flare assemblies shall contain:

- a. Parts of one kind from one supplier.
- b. Composition ingredients from not more than one lot, from one supplier.
- c. Quickmatch from not more than one supplier.

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d. Flare charge and first fire charge produced by one manufacturer under one continuous set of operating conditions and which consists of one or more batches that have been subjected to the same unit chemical or physical mixing process intended to make the final product homogeneous.

4.3.2 Examination.- Sampling plans and procedures for the following classifications of defects shall be in accordance with MIL-STD-105 except that inspection for critical defects (and majors, when so specified) shall be 100 percent. Contractor's sampling plans, if used, shall be approved by the Government and shall provide, as a minimum, the protection afforded the Government by the sampling plans in MIL-STD-105. Continuous sampling plans in accordance with MIL-STD-1235 for defects other than critical may be used if approved by the procuring activity. Also, at the option of the procuring activity, AQL's and sampling plans may be applied to the individual characteristics listed using an AQL of 0.40 percent for each major defect and an AQL of 0.65 percent for each minor defect. Equipment necessary for the performance of the inspections listed shall be in accordance with 4.3.4.

4.3.2.1 Spring release (see dwg. 9217922 covering a detail of dwg. 9217950)..

Categories	Defects	Method of Inspection	Code No. (see 6.2)
Critical:	None defined		
Major:	AQL 0.40 percent		
101.	Diameter, minimum (min.).....	Gage	01001
Minor:	AQL 1.00 percent		
201.	Protective finish missing or base metal exposed.....	Visual	01002
202.	Evidence of poor workmanship (see 3.7).....	Visual	01003

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4.3.2.2 Label (see dwg. 9217936 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			
Major: None defined			
Minor: AQL 1.00 percent			
201.	Marking missing, misleading or unidentifiable.....	Visual	02001
202.	Evidence of poor workmanship (see 3.7).....	Visual	02002

4.3.2.3 Cover, closing (see dwg. 9217934 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			
Major: AQL 0.40 percent			
101.	Crack or fracture.....	Visual	03001
Minor: AQL 1.50 percent			
201.	Diameter, min.....	Gage	03002
202.	Length, min.....	Gage	03003
203.	Protective finish missing or base metal exposed.....	Visual	03005
204.	Evidence of poor workmanship (see 3.7).....	Visual	03004

4.3.2.4 Tube, center (see dwg. 9217927 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			

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Major:	AQL 0.40 percent		
101.	Cut or punctured.....	Visual	04001
Minor:	AQL 2.50 percent		
201.	Outside diameter, min.....	Gage	04002
202.	Inside diameter, max.....	Gage	04003
203.	Layers insecure, blistered or gouged.....	Visual	04004
204.	Outside coating missing or evidence of bare spots.....	Visual	04005
205.	Evidence of poor workmanship (see 3.7).....	Visual	04006

4.3.2.5 Ring, reinforcing (see dwg. 9217933 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major:	AQL 0.40 percent		
101.	Crack or fracture.....	Visual	05001
Minor:	AQL 2.50 percent		
201.	Diameter of closing cover cavity, max.....	Gage	05002
202.	Diameter of hole, min.....	Gage	05003
203.	Length, min.....	Gage	05004
204.	Protective finish missing or base metal exposed.....	Visual	05006
205.	Evidence of poor workmanship (see 3.7).....	Visual	05005

4.3.2.6 Shock absorber and base block assembly (see dwg. 9217895 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

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Major: AQL 0.40 percent  
 101. Any component missing, insecure, improperly assembled or damaged to extent that function may be impaired..... Visual-Manual 06001

Minor: AQL 0.65 percent  
 201. Evidence of poor workmanship (see 3.7)..... Visual 06002

4.3.2.7 Cup, igniter (see dwg. 9217905 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major: AQL 0.65 percent  
 101. Diameter of hole..... Gage 07001  
 102. Depth of hole counter bore, min. Gage 07002  
 103. Diameter of hole counter bore, min..... Gage 07003  
 104. Length, min..... Gage 07004

Minor: AQL 1.00 percent  
 201. Radius on hole top surface missing..... Visual 07005  
 202. Evidence of poor workmanship (see 3.7)..... Visual 07006

4.3.2.8 Case, parachute (see dwg. 9217944 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

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Major:	AQL 0.40 percent		
101.	Lap seam solder insecure or incomplete.....	Visual- Manual	08001
Minor:	AQL 1.50 percent		
201.	Length, min.....	Gage	08002
202.	Protective finish missing or base metal exposed.....	Visual	08004
203.	Evidence of poor workmanship (see 3.7).....	Visual	08003

4.3.2.9 Tear strip assembly (see dwg. 9217907 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			
Major:	AQL 0.65 percent		
101.	Length of lap, min.....	Gage	09001
102.	Solder missing or incomplete (when applicable).....	Visual	09002
103.	Assembly damaged to extent that function may be impaired.....	Visual	09003
104.	Weld missing or insecure (when applicable).....	Visual	09004
Minor:	AQL 1.00 percent		
201.	Plating missing on ring (when applicable).....	Visual	09005
202.	Evidence of poor workmanship (see 3.7).....	Visual	09006

4.3.2.10 Tear strip and cover assembly (see dwg. 9217910 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			

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Major: AQL 0.40 percent  
 101. Crack or split..... Visual 10001  
 102. Solder where not required..... Visual 10002

Minor: AQL 0.65 percent  
 201. Evidence of poor workmanship  
 (see 3.7)..... Visual 10003

4.3.2.11 Block, base (see dwg. 9217896 covering a detail of  
 dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major: AQL 0.40 percent  
 101. Pitch diameter of threaded  
 holes, max..... Gage 11001  
 102. Minor diameter of threaded  
 holes, max..... Gage 11002

Minor: AQL 2.50 percent  
 201. Diameter, min..... Gage 11003  
 202. Thickness, min..... Gage 11004  
 203. Diameter of hole counter bore,  
 min..... Gage 11005  
 204. Location of igniter holes..... Gage 11006  
 205. Evidence of poor workmanship  
 (see 3.7)..... Visual 11007

4.3.2.12 Plug, spring release (see dwg. 9217923 covering a  
 detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major: AQL 0.40 percent  
 101. Diameter of top hole, max..... Gage 12001  
 102. Diameter of top, min..... Gage 12002

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Minor:	AQL 2.50 percent		
201.	Width of flat, min.....	Gage	12003
202.	Diameter of shank below flange, min.....	Gage	12004
203.	Length of flat surface, min.....	Gage	12005
204.	Finish improper.....	Visual	12007
205.	Evidence of poor workmanship (see 3.7).....	Visual	12006

4.3.2.13 Container, hang, wire (see dwg. 9217920 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major:	AQL 0.40 percent		
101.	Crack or fracture.....	Visual	13001
Minor:	AQL 1.50 percent		
201.	Diameter below flange, min.....	Gage	13002
202.	Depth inside, min.....	Gage	13003
203.	Diameter of hole, max.....	Gage	13006
204.	Evidence of poor workmanship (see 3.7).....	Visual	13007

4.3.2.14 Container hang wire weldment assembly (see dwg. 9217952 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major:	AQL 0.40 percent		
101.	Assembly damaged or distorted to extent that function may be impaired.....	Visual	14001

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Minor:	AQL 1.50 percent		
201.	Weld on stiffening plate or spring release strip missing or incorrectly assembled (when applicable).....	Visual	14002
202.	Stiffening plate or spring release strip insecure.....	Manual	14003
203.	Evidence of poor workmanship (see 3.7).....	Visual	14004

4.3.2.15 Shock absorber and igniter assembly prior to assembling safety disc (see dwg. 9217894 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical:			
1.	Length from base block to friction wire.....	Gage	15001
Major:	AQL 0.65 percent		
101.	Igniter assembly fired.....	Visual	15002
102.	Friction wires insecure or incorrectly attached to suspension cord.....	Visual	15003
103.	Igniter retainer insecure.....	Manual	15004
Minor:	AQL 0.65 percent		
201.	Evidence of poor workmanship (see 3.7).....	Visual	15005

4.3.2.16 Hang wire and container assembly (see dwg. 9217917 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical:	None defined		

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Major:	AQL 0.40 percent		
101.	Any component missing, insecure, improperly assembled or damaged to the extent that function may be impaired.....	Visual- Manual	16001
102.	Release spring torque insufficient to release spring release plug.....	Manual	16002
Minor:	AQL 1.00 percent		
201.	Protective coating missing on release spring or stiffening plate.....	Visual	16003
202.	Evidence of poor workmanship (see 3.7).....	Visual	16004

4.3.2.17 Igniter assembly (see dwg. 9217903 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
<b>Critical:</b>			
1.	Friction wire shellac coating missing.....	Visual	17001
2.	Length from igniter loading cup to friction composition, min....	Gage	17002
3.	Igniter charge loose or not consolidated.....	Visual	17003
4.	Friction composition loose or chipped.....	Visual	17004
Major:	AQL 0.65 percent		
101.	Length of friction wire loop, min.....	Gage	17005
102.	Friction composition missing....	Visual	17006
103.	Igniter charge missing.....	Visual	17007

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Minor: AQL 0.65 percent  
 201. Evidence of poor workmanship  
 (see 3.7)..... Visual 17008

4.3.2.18 Parachute assembly (see dwg. 9217915 covering a  
 detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major:	AQL 0.65 percent		
101.	Assembly damaged to extent that function may be impaired.....	Visual	18001
102.	Shroud lines of different length.....	Scale	18002
103.	Insufficient number of stitches.	Visual	18004

Minor:	AQL 0.65 percent		
201.	Evidence of poor workmanship (see 3.7).....	Visual	18003

4.3.2.19 Pull cord assembly (see dwg. 9217912 covering a  
 detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major: None defined

Minor:	AQL 1.50 percent		
201.	Length, between discs.....	Scale	19001
202.	Disc missing, broken or not properly secured.....	Visual	19002
203.	Pilot disc cords not properly secured to cord, pull.....	Visual	19003
204.	Evidence of poor workmanship (see 3.7).....	Visual	19004

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4.3.2.20 Illuminant loading assembly (see dwg. 9217916 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			
Major:	AQL 0.40 percent		
101.	Length to top seal.....	Gage	20001
Minor:	AQL 1.00 percent		
201.	Center tube not trimmed as required.....	Visual	20002
202.	Evidence of poor workmanship (see 3.7).....	Visual	20003

4.3.2.21 Illuminant assembly prior to assembling closing cover (see dwg. 9217925 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			
Major:	AQL 0.40 percent		
101.	Quickmatch missing or insecure..	Visual	21001
102.	Reinforcing ring solder missing or incomplete.....	Visual	21002
Minor:	AQL 0.65 percent		
201.	Evidence of poor workmanship (see 3.7).....	Visual	21003

4.3.2.22 Case and parachute assembly, prior to assembling tear strip and cover assembly and hang wire and container assembly (see dwg. 9217924 covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
Critical: None defined			

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Major: AQL 0.40 percent

101.	Parachute disc assembly missing or insecurely attached to pull out cord or release spring plug.	Visual- Manual	22001
102.	Parachute missing.....	Visual	22002

Minor: AQL 0.65 percent

201.	Evidence of poor workmanship (see 3.7).....	Visual	22003
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4.3.2.23 Case and parachute assembly prior to assembling  
tear strip and cover assembly (see dwg. 9217924 covering a detail  
of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major: AQL 0.40 percent

101.	Spring release plug not held by release spring.....	Manual	23001
102.	Hang wire and container assembly insecurely staked into parachute case.....	Visual- Manual	23005

Minor: AQL 0.65 percent

201.	Evidence of poor workmanship (see 3.7).....	Visual	23004
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4.3.2.24 Case and parachute assembly (see dwg. 9217924  
covering a detail of dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

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Major: AQL 0.40 percent  
 101. Parachute case damaged or distorted to extent that function is impaired..... Visual 24001

Minor: AQL 1.50 percent  
 201. Cover assembly solder missing or incomplete..... Visual 24002  
 202. Shroud cords damaged or not coiled..... Visual 24004  
 203. Evidence of poor workmanship (see 3.7)..... Visual 24003

4.3.2.25 Assembly, prior to assembling sealing strip (see dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major: None defined

Minor: AQL 0.65 percent  
 201. Flat head screw missing or not flush..... Visual 25001

4.3.2.26 Assembly (see dwg. 9217950).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major: AQL 1.00 percent  
 101. Length, max..... Gage 26001  
 102. Solder missing or joint incompletely sealed..... Visual 26002  
 103. Label missing..... Visual 26003  
 104. Assembly damaged to extent that function will be impaired..... Visual 26004

105.	Reinforcing cover missing or loose.....	Visual- Manual	26005
Minor:	AQL 1.50 percent		
201.	Marking misleading or unidentifiable.....	Visual	26006
202.	Protective coating damaged exposing base metal.....	Visual	26008
203.	Evidence of poor workmanship (see 3.7).....	Visual	26007

4.3.2.27 Workmanship.- Applies to all components and assemblies not specifically listed in 4.3.2.1 through 4.3.2.26 (see applicable drawings).

Categories	Defects	Method of Inspection
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Critical: None defined

Major:	AQL 0.40 percent per defect		
101.	Operation missing or improperly performed.....	Visual	
102.	Burr or chip on or at intersection or other functional surfaces.....	Visual- Manual	
103.	Finish of sliding or other functional surface improper.....	Visual	
104.	Component missing, or improperly assembled.....	Visual	
105.	Protective finish missing or contains bare spot.....	Visual	

Minor:	AQL 0.65 percent		
201.	Evidence of poor workmanship other than that covered under Major category above (see 3.7)..	Visual	

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## 4.3.2.28 Sealed fiber container (see dwg. 8864172).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major:		AQL 0.65 percent	
101.	Container cut or damaged through all impregnated asphalt layers..	Visual- Manual	28001
102.	Tape wrinkled or short in length.....	Visual	28002
103.	Metal end loose or distorted....	Visual- Manual	28003
Minor:		AQL 1.50 percent	
201.	Gap between cover and body of container in excess of 1/8 inch.	Visual	28004
202.	Tear tab length improper.....	Visual	28005
203.	Marking misleading or unidentifiable.....	Visual	28006
204.	Color of tape incorrect.....	Visual	28007

## 4.3.2.29 Sealed packing box (see dwg. 8864173).

Categories	Defects	Method of Inspection	Code No.
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Critical: None defined

Major:		AQL 0.40 percent	
101.	Box damaged to extent that contents are exposed.....	Visual	29001
102.	Wire broken or unsealed.....	Visual	29002
Minor:		AQL 1.00 percent	
201.	Marking misleading or unidentifiable.....	Visual	29003
202.	Car seal missing, incorrectly positioned or unsealed.....	Visual	29004

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4.3.3 Production testing.- Unless otherwise specified herein, the following tests shall be performed using Standard MIL-STD-105 for sampling plan requirements.

## 4.3.3.1 Moisture content (see Table I)

TABLE I

Material	Defect	Code No.
Flare composition (see 3.3.1)	Major	30001
First fire composition (see 3.3.1)	Major	30002
Paper and paper products (see 3.3.2)	Major	30003

The contractor shall provide adequate controls to insure compliance with the requirements, and shall test for verification at least one sample of each material from each eight hours production of flares. A composite sample shall not be used. If the moisture content of a sample exceeds the requirement, and loading has not begun, that quantity of material represented by the sample shall be rejected. If assemblies have been loaded with material containing excessive moisture, the remaining material that is represented by the sample together with all assemblies loaded with the non-conforming material shall be rejected. The tests shall be performed as specified in 4.4.1.

## 4.3.3.2 Strength of base block and suspension cable (see Table II)

TABLE II

Test	Defect	Code No.
Base block and suspension cable connection (see 3.4.1)	Major	31001
Thimble or suspension wire spool connection to suspension cable (see 3.4.2)	Major	31002

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4.3.3.2.1 Thirteen (13) shock absorber and base block assemblies shall be selected from each lot for test. If any suspension cable or base block exhibits any defect as listed in Table II, the lot shall be rejected. The test shall be performed as specified in 4.4.2.

4.3.3.3 Illuminant assembly (see Table III)

TABLE III

Defect	Classification	Code No.
Candle power average less than requirement (see dwg. 9217950)	Major	21004
Burning time less than min. (see dwg. 9217950)	Major	21005

4.3.3.3.1 Twenty (20) illuminant assemblies shall be selected from each lot for test. If two (2) or more assemblies fail to comply with any of the requirements listed in Table III, the lot shall be rejected. The test procedure shall be as specified in 4.4.3.

4.3.3.4 Functioning.- The flare assemblies shall be observed for any evidence of failure to comply with the requirements, as classified in Table IV, when tested as specified in 4.4.4.

TABLE IV

Defect	Classification	Code No.
Parachute failure (see 3.6.1)	Major	26013
Ignition delay excessive (3.6.2)	Major	26009
Flare charge burning improper (see 3.6.3)	Major	26010
Flare fails to ignite (see 3.6)	Major	26011
Burning time under min. (see dwg. 9217950)	Major	26012

#### 4.3.3.4.1 Proving Ground test

4.3.3.4.1.1 Beginning with the first lot produced and continuing until three consecutive lots have complied with the applicable requirement specified, eighty (80) flare assemblies shall be selected from each lot for test. The lot shall be rejected if six (6) or more assemblies exhibit any of the defects listed in Table IV.

4.3.3.4.1.2 After three consecutive lots have complied with the acceptance criteria of 4.3.3.4.1.1, thirty-two (32) flare assemblies shall be selected from each lot for test. The lot shall be rejected if three (3) or more assemblies exhibit any of the defects listed in Table IV.

4.3.3.5 Spring embrittlement of release spring (see 3.5) - Major defect - Code No. 01004.- Fifty (50) release springs shall be selected from each heat treatment batch for this test. If one or more springs fail to meet the requirement specified, the lot shall be rejected. Springs subjected to this test shall not be returned to the batch. Testing shall be as specified in 4.4.5.

4.3.3.6 Protective coating (see applicable drawings) - Major defects - Code No. 32001.- Sampling, acceptance and rejection shall be in accordance with QQ-T-191 or QQ-T-425 whichever is applicable, except that actual parts may be used in lieu of specimens. The test procedure shall be as specified in 4.4.6.

4.3.4 Inspection equipment.- Equipment Tabulation Number ET - 9217950 identifies the inspection equipment required to perform the examinations and tests prescribed in this section. The contractor shall design inspection equipment in accordance with the instructions in 6.3.

4.3.4.1 Government rights to documentation.- Inspection equipment drawings and lists provided and revised in accordance with the requirements of the ET may be used by DOD activities for design, procurement, manufacture, testing, evaluation, production and receiving inspection, overhaul, shipping, storage, identification of stock, ordering and storage of replacement parts, inspection of items at overhaul, general maintenance of equipment, construction, survey and whenever inspection equipment drawings are needed.

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4.3.4.2 Supply and maintenance.- Supply and maintenance of the equipment listed in the ET shall be in accordance with MIL-I-45607.

4.3.4.3 Government use of contractor's inspection equipment.- The contractor shall make available to the Government all inspection equipment necessary for determining conformance with contract requirements. Personnel for operating the equipment and verification of its accuracy, shall be supplied by the contractor for the performance of examination or test by the Government.

## 4.4 Test methods and procedures

## 4.4.1 Moisture content

4.4.1.1 Flare composition and first fire composition (preferred method).- The Karl Fischer Method as stated in MIL-STD-1234, Method 101.2 up to paragraph 5.3 shall be used. A fifty-gram sample plus or minus 0.1 gram shall be added to a 500 milliliter (ml) volumetric flask containing approximately 300 to 400 ml. of methanol and 25 grams of dry sodium nitrate. The flask shall be stoppered and the contents swirled cautiously for several minutes until the material is thoroughly dispersed. The sample shall be allowed to remain in contact with the methanol for approximately two hours. Then the 500 ml. volumetric flask shall be filled up to the 500 ml. mark with methanol and swirled again. A blank without the sample shall be put through the same procedure. After the sample has settled, a 50 ml. aliquot of the clear supernatant liquid shall be withdrawn and immediately transferred to the standard titration vessel containing approximately 100 ml. of methanol which has just been titrated to the preliminary end point as described in Standard MIL-STD-1234, Method 101.2, paragraph 5.1. The final end point shall be reached in 3.5 minutes in the manner described in Standard MIL-STD-1234, Method 101.2, paragraph 5.4. A 50 ml. aliquot of the blank shall be titrated in the same manner. The water content shall be calculated as follows:

$$\text{Percent water} = (VR-S) - (V'R-S')$$

Multiply the result by 100F and divide by W

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where:

- F = grams of water per ml. of standard water in methanol solution.
- V = ml. of Karl Fischer reagent added to the sample.
- V' = ml. of Karl Fischer reagent added to the blank.
- R = ml. of standard water in methanol solution per ml. of Karl Fischer reagent.
- S = ml. of standard water in methanol solution for titration of sample.
- S' = ml. of standard water in methanol solution with back titration of blank.
- W = weight of sample in grams.

4.4.1.2 Flare composition and first fire composition (alternate method).- The moisture content of the flare composition and the first fire composition shall be determined in accordance with Method T101.4 of Standard MIL-STD-286. The temperature setting shall be 100 degrees Centigrade (C.) and the time setting thirty (30) minutes. The sample size shall be not less than 0.25 grams nor more than 0.50 grams.

4.4.1.3 Paper and paper products.- The moisture content shall be determined in accordance with Method 102.1 of MIL-STD-1234, except that a ten (10) gram sample of each paper product shall be used and dried for two (2) hours.

4.4.2 Strength of base block and suspension cable.- The strength of the suspension cable connection to the base block and the thimble or suspension wire spool connection to the suspension cable shall be tested in accordance with the equipment and procedure specified in 4.3.4.

4.4.3 Candlepower and burning time of illuminant assembly.- The illuminant assemblies shall be supported in a suitable fixture with the ignition end up and ignited. The burning time shall be recorded. Determination of the candlepower shall be made in accordance with the procedures and equipment specified in 4.3.4.

4.4.4 Functioning.- The test flare assemblies shall be mounted in an aircraft, and with the aircraft flying at a calibrated indicated air speed of between 85 and 100 miles per hour at an altitude of not less than 3000 plus or minus 200

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feet, one half of the test flare assemblies shall be individually released and observed for compliance with the requirements. The remaining half of the test flare assemblies shall be tested in the same manner except that the aircraft calibrated indicated air speed shall be approximately 200 miles per hour.

4.4.5 Spring embrittlement of release spring.- The spring shall be compressed at the open ends until it breaks or no longer returns to its original profile. When the spring no longer returns to its original profile, it shall be considered permanently distorted. Springs subjected to test shall not be returned to the lot.

4.4.6 Protective coating.- The adequacy of the protective coating shall be tested in accordance with the procedures specified in Specification QQ-T-191 or QQ-T-425 whichever is applicable.

5. PREPARATION FOR DELIVERY

5.1 Preservation and packaging

5.1.1 Level A.- The flare assemblies shall be preserved and packaged in accordance with dwg. 8864172.

5.2 Packing

5.2.1 Level A.- The container shall be packed in accordance with dwg. 8864173.

5.3 Marking.- The containers shall be marked as specified on dwgs. 8864172 and 8864173.

6. NOTES

6.1 Ordering data.- Procurement documents shall specify the following:

- a. Title, number and date of this specification.
- b. Data cards.- Data cards shall be prepared for each lot in accordance with the information specified in Standard MIL-STD-1167.
- c. Provisions for submission of first article samples.

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6.2 Inspection code numbers.- The five digit code numbers assigned to the inspections herein are to facilitate future data collection and analysis by the Government.

6.3 Inspection equipment.- The contractor shall design inspection equipment as required by the inspection Equipment Lists (EL) referenced on the applicable ET in accordance with the instructions of paragraphs 6.3.1 through 6.3.5.

6.3.1 Inspection equipment lists (EL).- Inspection equipment lists indicate the availability of inspection equipment designs by showing in the "number" column of the list of inspection equipment (Form SMUPA 1010) the numbers of drawings or Federal Stock numbers of existing equipment designs, or codes as indicated in paragraph 6.3.2. Design action required of the contractor is described in paragraphs 6.3.3 and 6.3.4. The contractor will be required to prepare detailed drawings in accordance with 6.3.4 for all the equipment coded as "Contractor Design" in the number column. These contractor designs must be approved by the Government prior to fabrication or procuring of the equipment. Designs shall be submitted for approval as specified in 6.3.5.

6.3.2 Inspection equipment list codes.- The inspection equipment as defined in 6.3.3 and 6.3.4 will be designated in the EL by the following codes:

CD - Contractor design on controlled contractor format and/or commercial equipment.

MU - Army design, mandatory for use.

6.3.3 Army designs.- Army designs are reflected on detailed drawings which completely depict all the information necessary for the fabrication of the item of inspection equipment. The contractor need provide no design when an Army design is listed for an item of inspection equipment. Army designs fall into two basic classifications; mandatory (designated "MU") and non-mandatory (indicated by drawing or Federal Stock Number). When an inspection equipment list references mandatory Army designs, the contractor shall comply with, and use these designs accordingly. The contractor may, however, in connection with non-mandatory designs,

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and with the approval of the Government, design alternate inspection equipment or use comparable commercial equipment to facilitate his operations. Such contractor prepared designs or commercial equipment selections must be approved by the Government prior to fabrication or procuring of the equipment. Designs shall be submitted for approval as specified in 6.3.5.

6.3.4 Contractor designs.- Contractor designs are designs of inspection equipment for which the Government has assigned design responsibility to the contractor. Contractor designs shall be supported by detailed drawings which depict all information necessary to completely fabricate, calibrate and operate an item of inspection equipment. This requires that the necessary views, dimensions, materials, finish, notes, operating and calibration instructions be properly depicted in accordance with approved practices to the extent that further calculation or clarification will not be required. Unless otherwise specified, contractor designs may be developed on the format the contractor normally employs in his equipment design procedure provided such format reflects the detail and information specified above, subject to the following controls: All submitted contractor designs shall conform to MIL-D-1000, Category E, Form 2. Legibility and reproducibility shall permit conventional making of clearly understandable, high contrast reproductions. Contractors shall submit three copies of final designs as a flat set. Designs shall be submitted for approval as specified in 6.3.5.

6.3.5 Submission of contractor designs.- All submitted designs shall contain a reference to the applicable five digit Code Number contained in Section 4 of this specification and the appropriate component or assembly drawing number and revision letter to which the specific design applies. Unless otherwise specified on the EL, all designs of equipment for inspection of defects classified as critical and major shall be submitted for approval to the Commanding Officer, Picatinny Arsenal, ATTN: SMUPA-ND1. All other designs of inspection equipment shall be approved by the inspection element of the agency administering the contract; submission shall be as directed by the contracting officer. Partial submission of inspection equipment designs is

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permissible and encouraged. However, the Arsenal completion date for design review will be based on the date of the final submission of designs. Picatinny Arsenal design review will be accomplished normally within one month after receipt.

Custodian:  
Army-MU

Preparing activity:  
Army-MU

Project Number: 1370-A-263

**SPECIFICATION ANALYSIS SHEET**Form Approved  
Budget Bureau No. 119-R004**INSTRUCTIONS**

This sheet is to be filled out by personnel either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity.

SPECIFICATION

ORGANIZATION

CITY AND STATE

CONTRACT NO.

QUANTITY OF ITEMS PROCURED

DOLLAR AMOUNT

\$

MATERIAL PROCURED UNDER A

 DIRECT GOVERNMENT CONTRACT SUBCONTRACT

1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

 YES NO

IF "YES", IN WHAT WAY?

4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)

SUBMITTED BY (Printed or typed name and activity)

DATE

DD FORM 1426  
1 OCT 64