

MIL-S-13303G(AR)
14 September 1984
SUPERSEDING
MIL-S-13303F (Mu)
10 January 1972

MILITARY SPECIFICATION

SIGNALS, SMOKE, GROUND, HAND HELD
PARACHUTE, GREEN SMOKE, M128A1,
RED SMOKE, M129A1, AND YELLOW SMOKE, M194
PARTS AND LOADING, ASSEMBLING AND PACKING

This specification is approved for use by the U.S. Army Armament, Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the parts, loading, assembling and packing for three signals designated as Signal, Green Smoke M128A1, Signal, Red Smoke M129A1, and Signal, Yellow Smoke M194.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards, Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-C-10464	- Cans, Hermetic Sealing, Metal, Light Gage, Tear-Strip Type.
MIL-W-12332	- Welding, Resistance, Spot and Projection, for Fabricating Assemblies of Low Carbon Steel.
MIL-A-48078	- Ammunition, Standard Quality Assurance Provisions, General specification For.

FSC 1370

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, US Army Armament Research and Development Center, Attn. DRSMC-QA, Dover, New Jersey 07801 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

MIL-S-13303G(AR)

STANDARDS

FEDERAL

FED-STD-151 - Metals; Test Methods

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for
Inspection by Attributes
MIL-STD-1234 - Pyrotechnics; Sampling, Inspection and
Testing

2.1.2 Other Government documents, drawings, and publications.
The following other Government documents, drawings, and publications
form a part of this specification to the extent specified herein.

DRAWINGS

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT CENTER (ARDC)

7548414 - Container, Ammunition, Metal M492 for
Ground Signals
7548415 - Box, Packing, Ammunition, for Ground
Signals in Metal Containers M492
8797996 - Signals, Smoke, Ground, Parachute,
Green Smoke, M128A1, and Red Smoke,
M129A1 Signal Assembly
9255782 - Signal, Smoke, Ground, Yellow Parachute,
M194, Assembly

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

2.1.3 Order of precedence. In the event of a conflict between
the text of this specification and the references cited herein, the
text of this specification shall take precedence.

3. REQUIREMENTS

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

3.2 Assembly. The assembly shall comply with all requirements
specified on Drawings (dwgs) 8797996 and 9255782 and with all
requirements specified in applicable specifications.

3.3 Moisture content of delay composition. The moisture
content of the delay composition at the loading station at the time
of loading, shall not exceed 0.3 percent when tested as specified in
4.5.1.

MIL-S-13303G(AR)

3.4 Functioning. The signal shall function and shall comply with the following requirements:

3.4.1 Premature burst. The signal assembly shall not burst in, or within one hundred (100) feet, of the launcher. The smoke assembly shall not eject at an altitude of less than one hundred (100) feet from the ground within a horizontal distance of two hundred and fifty (250) feet of the launcher, or at an altitude of less than fifty (50) feet from the ground at a horizontal distance in excess of two hundred and fifty (250) feet from the launcher.

3.4.2 Parachute. The parachute shall not separate from the assembly, delay opening from time of ejection for more than 5 seconds, or remain partially open.

3.4.3 Hot temperature ($160^{\circ} \pm 5^{\circ}\text{F}$). The signal assembly shall function and shall comply with the requirements of 3.4.1 when tested as specified in 4.5.2.1.

3.4.4 Ambient ($70^{\circ} \pm 5^{\circ}\text{F}$). The signal assembly shall function and shall comply with the following when tested as specified in 4.5.2.2:

- a. the requirements of 3.4.1 and 3.4.2.
- b. the smoke assembly shall not eject at an angle of more than 30 degrees from the vertical, or emit the first trace of smoke at an altitude of less than 500 feet.
- c. the average altitude for all smoke assemblies which function above 500 feet shall be not less than 725 feet.
- d. the average angle from the vertical for all smoke assemblies which function within the maximum (max.) angle from the vertical (30°) shall be not more than 12 degrees.
- e. the smoke assembly shall start to emit smoke not more than 4 seconds after ejection from the signal.
- f. the burning time of the smoke assembly shall be not less than 6.0 seconds nor more than 18.0 seconds for the M128A1 and M129A1, and not less than 9.0 seconds nor more than 18.0 seconds for the M194.

3.4.5 Cold temperature (Minus $650 \pm 5^{\circ}\text{F}$). The signal assembly shall function and shall comply with the following when tested as specified in 4.5.2.3.

- a. the requirements of 3.4.1 and 3.4.2.
- b. the smoke assembly shall start to emit smoke not more than 4 seconds after ejection from the signal.
- c. the burning time of the smoke assembly shall be not less than 6.0 seconds nor more than 22.0 seconds for the M128A1 and M129A1 and not less than 9.0 seconds nor more than 18.0 seconds for the M194.

MIL-S-13303G(AR)

d. the average angle from the vertical of the ejected smoke assemblies shall not exceed 25 degrees.

The altitude shall be recorded for informational purposes.

3.5 Leakage test. The sealed metal container shall show no evidence of leakage when tested as specified in 4.5.3.

3.6 Container tear strip. The container tear strip shall comply with the requirements of MIL-C-10464 when tested as specified in 4.5.4.

3.7 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.

3.8 Workmanship. All parts shall be fabricated and finished in a thorough, workmanlike manner. They shall be free of burrs, chips, sharp edges, cracks, surface defects, dirt, grease, rust, 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. All required markings shall be neat and sharply defined.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection and standard quality assurance provisions. Unless otherwise specified herein or in the contract, the provisions of MIL-A-48078 shall apply and are hereby made a part of this detail specification.

4.2 Classification of inspections. The following types of inspection shall be conducted on this item:

- a. First Article Inspection.
- b. Quality Conformance Inspection.

4.3 First article inspection.

4.3.1 Submission. The contractor shall submit a first article sample as designated by the Contracting officer for evaluation in accordance with provisions of 4.3.2. The first article sample shall consist of items in sample quantities as indicated in Table 1.

4.3.2 Inspections to be Performed. See MIL-A-48078 and Table 1 specified herein.

4.3.3 Rejection. See MIL-A-48078.

TABLE I. First article inspection**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 1 of 5		DRAWING NUMBER	
	Signals, Smoke, Ground, Hand Held Parachute, Green Smoke, M1281, Red Smoke, M129A1, and Yellow Smoke, M194			See Below NEXT HIGHER ASSEMBLY	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
	<u>Firing Cap</u> (Dwg. 8797955) Examination for defects	25		3.2	4.2.2.1
	<u>Housing, Delay</u> (Dwg. 9251411) Examination for defects	25		3.2	4.4.2.2
	<u>Delay Assembly</u> (Dwg. 9251412) Examination for defects	96		3.2	4.4.2.3
	<u>Body, Signal Delay - Alternate</u> (Dwg. 9280024) Examination for defects	96		3.2	4.4.2.4
	<u>Body, Signal Delay Assembly - Alt.</u> (Dwg. 9294590) Examination for defects	96		3.2	4.4.2.5
	<u>Exhaust Plate</u> (Dwg. 9235026) Examination for defects	25		3.2	4.4.2.6
NOTE:					

DPSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

TABLE I. First article inspection**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 2 OF 5		DRAWING NUMBER
	Signals, Smoke, Ground, Hand Held Parachute, Green Smoke, M1281, Red Smoke, M129A1, and Yellow Smoke, M194			See Below NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AGL OR 100%	REQUIREMENT PARAGRAPH
	<u>Pin, Firing</u> (Dwg. 8797954) Examination for defects	25		3.2
	<u>Firing Cap and Spring Clip Assembly</u> (Dwg. 8797953) Examination for defects Push test	25 25 (a)		3.2 3.2
	<u>Grain Propellant</u> (Dwg. 8887523) Examination for defects Density	80 80		3.2 3.2
	<u>Bolt</u> (Dwg. 8797928) Examination for defects Pull strength	25 25		3.2 3.2
	<u>Smoke Assembly</u> (Dwg. 8797998) Examination for defects	25		3.2
	<u>Vane, Tail</u> (Dwg. 8797951) Hardness of tail vane	20		3.2
notes	(a) Above items to be used for test.			

DRSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

TABLE I. First article inspection**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 3 OF 5		DRAWING NUMBER	
	Signals, Smoke, Ground, Hand Held Parachute, Green Smoke, M1281, Red Smoke, M129A1, and Yellow Smoke, M194			See Below NEXT HIGHER ASSEMBLY	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD
	<u>Signal Body & Delay Assembly</u> (Dwg. 8797961) Examination for defects	25		3.2	4.4.2.12
	<u>Propellant Assembly</u> (Dwg. 8887530) Examination for defects	80		3.2	4.4.2.13
	<u>Delay Assembly</u> (Dwg. 8797965) Examination for defects	96		3.2	4.4.2.14
	<u>Tail Assembly</u> (Dwg. 8797947) Examination for defects Weld peel test	25 25(a)		3.2 3.2	4.4.2.15 4.5.10
	<u>Barrel, Rocket</u> (Dwg. 8797929) Examination for defects	25		3.2	4.4.2.16
	<u>Tube, Casing</u> (Dwg. 8797921) Examination for defects Hydrostatic test	25 25(a)		3.2 4.4.3.6	4.4.2.17 4.5.6
NOTE: (a) Above items to be used for test.					

NP SMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

TABLE I. First article inspection

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G(AR)

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	AQL OR 100%	SHEET 4 OF 5	DRAWING NUMBER
	Signals, Smoke, Ground, Hand Held Parachute, Green Smoke, M1281, Red Smoke, M129A1, and Yellow Smoke, M194				See Below NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
	<u>Parachute Assembly</u> (Dwg. 8797991) Examination for defects	96		3.2	4.4.2.18
	<u>Assembly (Signal Body & Delay Assem.)</u> (Dwg. 8797996/9255782) Examination for defects	96		3.2	4.4.2.19
	<u>Assembly (Signal & Delay Assem.)</u> (Dwg. 8797996/9255782) Examination for defects	96		3.2	4.4.2.20
	<u>Assembly (Signal Body & Delay Assem.)</u> (Dwg. 8797996/9255782) Examination for defects	96		3.2	4.4.2.21
	<u>Assembly (Prior to Assembling Rocket Assembly, In Rocket Barrel</u> (Dwg. 8797996/9255782) Examination for defects	96		3.2	4.4.2.22
	<u>Assembly (After Assembling Rocket Assembly But Prior to Inserting Rocket Barrel Seal</u> (Dwg. 8797996/9255782) Examination for defects	96		3.2	4.4.2.23
NOTES:					

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

TABLE I. First article inspection

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G(AR)

PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET 5 of 5		DRAWING NUMBER
				AQL OR 100%	REQUIREMENT PARAGRAPH	See Below NEXT HIGHER ASSEMBLY
	Signals, Smoke, Ground, Hand Held Parachute, Green Smoke, M1281, Red Smoke, M129A1, and Yellow Smoke, M194					PARAGRAPH REFERENCE / INSPECTION METHOD
	Assembly (Prior to Assembling Firing Cap & Spring Clip Assembly) (Dwg. 8799996/9255782) Examination for defects		96	3.2	4.4.2.24	
	Assembly (Dwg. 8797996/9255782) Examination for defects Functioning +160°F Functioning +70°F Functioning minus 65°F Functioning minus 65°F		96 32(a) 32(a) 16(a) 16(a)	3.2 3.4.3 3.4.4 3.4.5 3.4.5	4.4.2.25 4.5.2.1 4.5.2.2 4.5.2.3.1 4.5.2.3.2	
	Container (Dwg. 7548414) Examination for defects		96	3.2	4.4.2.26	
	Container Sealed (Dwg. 9548414) Examination for defects		96	3.2	4.4.2.27	
	Wood Packing Box (Dwg. 7548415) Examination for defects		3 boxes	3.2	4.4.2.28	
Notes: (a) Above items to be used for test.						

NP SMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

MIL-S-13303G(AR)

4.4 Quality conformance inspection.

4.4.1 Inspection lot formation. Inspection lots shall comply with the lot formation provisions of MIL-A-48078. In addition, each inspection lot of signal assemblies shall contain:

- a. Parts of one kind from one supplier.
- b. Primers of one interfix lot number.
- c. Black powder from not more than one lot.
- d. Signal assemblies of not more than one designation.
- e. Composition ingredients from not more than one lot.
- f. Smoke composition 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.

4.4.2 Examination. See MIL-A-48078.

- a. Sampling plans. Unless otherwise specified in the Classification of Defects and Test tables, sampling plans and procedures for major and minor defects shall be in accordance with MIL-STD-105.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AGL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
4.4.2.1	Firing Cap				1 of 1	8797955
CATEGORY						NEXT HIGHER ASSEMBLY 8797996/9255782
						PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined					
<u>Major</u> 101	Concentricity of cap with firing pin recess			0.40%	3.2	Gage
102	Depth of firing pin recess			0.40%	3.2	Gage
<u>Minor</u> 201	Length of spring clip recess, min.			0.65%	3.2	Gage
202	Diameter of firing pin recess			0.65%	3.2	Gage
203	Diameter of rivet hole			0.65%	3.2	Gage
204	Poor workmanship			1.0%	3.8	Visual
<u>Notes</u>						

NP SMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 1 of 1		DRAWING NUMBER
4.4.2.2	Housing, Delay			9251411
				NEXT HIGHER ASSEMBLY 8797996
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH
				PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined			
<u>Major</u>				
101	Diameter under flange		0.40%	Gage
102	Small outside diameter		0.40%	Gage
103	Pitch diameter of thread, max.		0.40%	Gage
104	Minor diameter of thread, max.		0.40%	Gage
105	Diameter of delay cavity		0.40%	Gage
106	Depth of delay cavity		0.40%	Gage
<u>Minor</u>				
201	Diameter of flange		0.65%	Gage
202	Length of diameter under flange		0.65%	Gage
203	Location of flash hole		0.65%	Gage
204	Poor workmanship		0.65%	Visual
NOTES:				

DRSMC-DA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH 4.4.2.3	TITLE Delay Assembly	SHEET 1 OF 1		DRAWING NUMBER 9251412
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	NEXT HIGHER ASSEMBLY 8797996
<u>Critical</u>	None defined			PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Major</u> 101 102 103	Igniter composition above flush Delay charge missing Flash hole obstructed		0.40% 0.40% 0.40%	Gage Visual Visual
<u>Minor</u>	None defined			
NOTE				

NPSCMC-0A (b) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G(AR)

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.4	Body, Signal Delay - Alternate					9280024
						NEXT HIGHER ASSEMBLY
						9255782
CATEGORY	EXAMINATION OR TEST					PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined					
<u>Major</u>						
101	Small outside diameter at delay end		0.40%	3.2		Gage
102	Large outside diameter under shoulder at delay end		0.40%	3.2		Gage
103	True position of bolt hole pitch diameter with outside diameter		0.40%	3.2		Gage
104	True position of small outside diameter at delay end with bolt hole pitch diameter		0.40%	3.2		Gage
105	Pitch diameter of thread, max.		0.40%	3.2		Gage
106	Minor diameter of thread, max.		0.40%	3.2		Gage
107	Diameter of delay cavity		0.40%	3.2		Gage
108	Depth of delay cavity		0.40%	3.2		Gage
109	Outside diameter		0.40%	3.2		Gage
110	Total length		0.40%	3.2		Gage
111	Wall thickness at open end, min.		0.40%	3.2		Gage
<u>Minor</u>						
201	Length of small outside diameter at delay end		0.65%	3.2		Gage
202	Thickness through bottom of hex shaped powder cavity		0.65%	3.2		Gage
203	Location of flash hole		0.65%	3.2		Gage
204	Poor workmanship		1.0%	3.8		Visual
NOTES:						

NPSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G (AR)

PARAGRAPH	TITLE	SHEET		DRAWING NUMBER	
		1	1	9294590	
		OF		NEXT HIGHER ASSEMBLY	
CATEGORY	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE	INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>	Delay charge missing	0.40%	3.2	Visual	
101	Flash hole obstructed	0.40%	3.2	Visual	
102	Delay charge above flush or more than max. below flush	0.40%	3.2	Gage	
103					
<u>Minor</u>	Poor workmanship	1.0%	3.8	Visual	
201					
<u>Notes</u>					

DRSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH		TITLE		SHEET		DRAWING NUMBER	
4.4.2.6		Exhaust Plate		1 OF 1		9235026	
CATEGORY		EXAMINATION OR TEST		AQL OR 100%		NEXT HIGHER ASSEMBLY	
				NO. OF SAMPLE UNITS		8797996/9255782	
						PARAGRAPH REFERENCE / INSPECTION METHOD	
<u>Critical</u>							
1							
<u>Major</u>							
101		Exhaust hole missing		100%		3.2	
102		Diameter at large end of taper		0.40%		3.2	
103		Diameter at small end of taper		0.40%		3.2	
104		Thickness, min.		0.40%		3.2	
105		Length to flange, max.		0.40%		3.2	
106		Diameter of flange		0.40%		3.2	
107		True position of bolt hole with diameter under flange including perpendicularity		0.40%		3.2	
108		True position of exhaust holes with diameter under flange		0.40%		3.2	
109		Diameter under flange, min.		0.40%		3.2	
110		Diameter of bolt hole, max.		0.40%		3.2	
<u>Minor</u>							
201		Thickness, max.		0.65%		3.2	
202		Diameter of bolt hole counterbore, max.		0.65%		3.2	
203		Depth of bolt hole counterbore, max.		0.65%		3.2	
204		Finish improper		0.65%		3.2	
205		Poor workmanship		1.0%		3.8	
<u>Notes</u>							

NPSC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH		TITLE	SHEET 1 OF 1		MIL-S-13303G(AR)	
4.4.2.7		Pin, Firing			DRAWING NUMBER	8797954
CATEGORY		EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY 8797996/9255782
						PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>		None defined				
Major 101		Profile of point		0.40%	3.2	Gage
102		Length from point to shoulder		0.40%	3.2	Gage
Minor 201		Protective coating damaged exposing base metal		0.65%	3.2	Visual
202		Poor workmanship		1.0%	3.8	Visual
NOTE						

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER 8797953 NEXT HIGHER ASSEMBLY 8797996/9255782	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.8	Firing Cap and Spring Clip Assembly				
<u>Critical</u>	None defined				
Major 101 102 103 104 105	Diameter over rivet head, max. Rivet head protrudes inside wall Firing pin missing or loose Spring clip missing or loose Push test	200- 1-2	0.40% 0.40% 0.40% 0.40%	3.2 3.2 3.2 3.2	Gage Visual Visual/Manual Visual/Manual
Minor 201	Poor workmanship		1.0%	3.8	4.5.9 Visual
NOTES:					

DDSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET		DRAWING NUMBER	
		1	1	8887529	
		OF		NEXT HIGHER ASSEMBLY	
				8797996/9255782	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.9	Grain, Propellant				
<u>Critical</u> 1	Crack		100%	3.2	Visual (4 power magnification)
<u>Major</u> 101	Inside diameter		0.40%	3.2	Gage
102	Outside diameter		0.40%	3.2	Gage
103	Density		100%	3.2	4.5.5
<u>Minor</u> 201	Poor workmanship		1.0%	3.8	Visual
NOTES					

NRS-MC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER
4.4.2.10	Bolt			8797928
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH
<u>Critical</u>	None defined			
Major 101	Length, min.		0.40%	Gage
102	Pitch diameter of thread, min.		0.40%	Gage
103	Major diameter of thread, min.		0.40%	Gage
104	Diameter of flash holes, min.		0.40%	Gage
105	Length under head		0.40%	Gage
106	Diameter of head, min.		0.40%	Gage
107	Concentricity of head with thread		0.40%	Gage
108	Flash holes obstructed or fail to intersect each other		0.40%	Gage
109	Pull strength	20-0-1	0.40%	Visual
Minor 201	Length from head to intersecting flash hole		0.65%	Gage
202	Poor workmanship		1.0%	Visual
<u>Notes</u>				

NPSCMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G (AR)

PARAGRAPH	TITLE	SHEET 1 1 OF		DRAWING NUMBER	
4.4.2.11	Smoke Assembly			8797998/9255783	
				NEXT HIGHER ASSEMBLY	
				8797996/9255782	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u> I	Color designation incorrect		100%	3.2	Visual
Major 101 102 103	Outside diameter, max. Any component missing Wrapper overlaps holes		0.40%	3.2	Gage
			0.40%	3.2	Visual
			0.40%	3.2	Visual
Minor 201 202 203	Total length, max. Marking misleading or unidentifiable Poor workmanship		0.65%	3.2	Gage
			0.65%	3.2	Visual
			1.0%	3.8	Visual
NOTE:					

DDSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

MIL-S-13303G (AR)

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	SHEET		DRAWING NUMBER	
		1	1	8797961	
		OF		NEXT HIGHER ASSEMBLY	
				8797996/9255782	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u>	None defined				
<u>Minor</u>	Marking misleading or unidentifiable		0.65%	3.2	Visual
201	Designation incorrect		0.65%	3.2	Visual
202	Poor workmanship		1.0%	3.8	Visual
203					
Notes	This defect classification applicable only when assembly is loaded by other than prime contractor.				

DRSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH		TITLE		SHEET		DRAWING NUMBER	
4.4.2.13		Propellant Assembly		1 1 OF		8887530	
MIL-S-13303G(AR)						NEXT HIGHIER ASSEMBLY	
						8797996/9255782	
CATEGORY		EXAMINATION OR TEST		NO. OF SAMPLE UNITS		AQL OR 100%	
						REQUIREMENT PARAGRAPH	
						PARAGRAPH REFERENCE / INSPECTION METHOD	
<u>Critical</u>							
1	Pettman cement on interior surface where not permitted						Visual
2	Pettman cement coating insufficient (slight imperfections of pin hole type or those resulting from the bristles of the brush used in applying the cement are acceptable)						Visual
3	Grain broken						Visual
<u>Major</u>							
101	Length, max.						Gage
102	Glaze not removed from interior						Visual
<u>Minor</u>							
201	Sheath damaged						Visual
202	Marking misleading or unidentifiable						Visual
203	Poor workmanship						Visual
NOTE:							

NP:SMC-QA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

TITLE		SHEET 1 OF 1		MIL-S-13303G (AR)	
PARAGRAPH	Delay Assembly			DRAWING NUMBER	
4.4.2.14				8797965	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u> 1	Delay ring flush or below housing surface		100%	3.2	Gage
<u>Major</u> 101	Thickness over delay ring, max.		0.40%	3.2	Gage
102	Pitch diameter of thread, max.		0.40%	3.2	Gage
103	Minor diameter of thread, max.		0.40%	3.2	Gage
<u>Minor</u> 201	Diameter, max.		0.65%	3.2	Gage
202	Poor workmanship (except that burrs resulting from assembly of delay ring in delay housing are permissible)		1.0%	3.8	Visual
NOTES:					

NSC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH		TITLE	SHEET 1 OF 1		MIL-S-13303G(AR)	
4.4.2.15		Tail Assembly			DRAWING NUMBER	8797947
CATEGORY		EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY 8797996/9255782
						PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>		None defined				
Major						
101		Length, max.		0.40%	3.2	Gage
102		Small width of fin, max.		0.40%	3.2	Gage
103		Inside diameter of upper tail ring, min.		0.40%	3.2	Gage
104		Perpendicularity of ends with diameter		0.40%	3.2	Gage
105		Large width, max.		0.40%	3.2	Gage
106		Assembly damaged or distorted to the extent that function will be impaired		0.40%	3.2	Gage
107		Weld missing		0.40%	3.2	Visual
108		Weld flash excessive		0.40%	3.2	Visual
109		Perpendicularity of fins with each other		0.40%	3.2	Visual
110		Parallelism of opposite fins		0.40%	3.2	Gage
				0.40%	3.2	Gage
Minor						
201		Length from ring to tail vane, min.		0.65%	3.2	Gage
202		Poor workmanship		1.0%	3.8	Visual
NOTES						

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G (AR)

PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AGL OR 100%	SHEET 1 OF 1	DRAWING NUMBER 8797929 NEXT HIGHER ASSEMBLY 8797996/9255782	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.16	Barrel, Rocket						
Critical 1 2		Crack Draw marks, inclusions, scratches more than .015 deep in sidewall		100%	3.2	Visual	
Major 101 102		Diameter of primer hole, max. Concentricity of primer hole and counterbore with inside diameter		0.40%	3.2	Visual/Gage	
103		Inside diameter		0.40%	3.2	Gage	
104		Depth of primer counterbore		0.40%	3.2	Gage	
105		Outside of rear end		0.40%	3.2	Gage	
106		Length of knurl, max.		0.40%	3.2	Gage	
Minor 201 202		Wall thickness, min. Thickenss through bottom of charge cavity		0.65%	3.2	Gage	
203		Diameter of charge cavity		0.65%	3.2	Gage	
204		Total length		0.65%	3.2	Gage	
205		Length to top of charge cavity		0.65%	3.2	Gage	
206		Radii missing		0.65%	3.2	Visual	
207		Poor workmanship		1.0%	3.8	Visual	
NOTES							

NPSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G (AR)

PARAGRAPH	TITLE	SHEET		NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
		1	1 OF					
4.4.2.17	Tube, Casing							8797921
								NEXT HIGHER ASSEMBLY
								8797996/9255782
CATEGORY								PARAGRAPH REFERENCE /INSPECTION METHOD
<u>Critical</u> 1 2	Crack or split Pressure test performance symbol missing	100%	3.2	(1)			Visual	
<u>Major</u> 101	Concentricity of ends including perpendicularity total length, max.	100%	3.2	(1)			Visual	
102	Inside diameter of ends, max.	0.40%	3.2				Gage	
103	Inside diameter of body, max.	0.40%	3.2				Gage	
104	Hydrostatic test	0.40%	3.2				Gage	
105		100%	3.2				4.5.6	
<u>Minor</u> 201	Poor workmanship	1.0%	3.8				Visual	
Notes:	(1) These inspections shall be performed after the hydrostatic pressure test.							

DRSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER
4.4.2.18	Parachute Assembly			8797991
				NEXT HIGHER ASSEMBLY
				8797996/9255782
CATEGORY	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined			
Major <u>101</u>	Parachute torn, contains holes or is improperly tied to suspension cord	0.40%	3.2	Visual
102	Shrouds twisted	0.40%	3.2	Visual
Minor <u>201</u>	Poor workmanship	1.0%	3.8	Visual
NOTES				

DPSMC-DA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G (AR)

PARAGRAPH	TITLE	SHEET		DRAWING NUMBER	
		1	1 OF	8797996/9255782	NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.19	Assembly (Signal Body & Delay Assembly)				
<u>Critical</u>					
1	Tail assembly binds on tube casing (See Note)		100%	3.2	Visual
2	Exhaust plate flange missing or inadequate to engage tail assembly (See Note)		100%	3.2	Visual
<u>Major</u>					
101	Bolt or tube casing loose		0.40%	3.2	Manual
102	Bolt flash hole obstructed		0.40%	3.2	Visual
103	Propellant assembly loose		0.40%	3.2	Manual
<u>Minor</u>					
201	Poor workmanship		1.0%	3.8	Visual
NOTE: Starting with the upper tail ring contacting the signal body and delay assembly, if the tail assembly does not slide down to the end of the tube casing by its own weight when the signal is held, forward end up, in a vertical position, the assembly shall be classed defective and removed from the lot. If tail assembly falls off because of absence or inadequacy of exhaust plate flange, the assembly shall also be classed defective and removed from the lot.					
<u>notes</u>					

NPSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER	
4.4.2.20	Assembly (Signal & Delay Assembly)			8797996/9255782	NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>	None defined				
<u>Major</u> 101	Weight of expelling charge, min. (See Note)		0.40%	3.2	Balance
102	Expelling charge missing		0.40%	3.2	Visual
<u>Minor</u> 201	Poor workmanship		1.0%	3.8	Visual
NOTE:	Expelling charge shall be weighed just prior to insertion of charge in signal body and delay assembly.				

DRSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH		TITLE		SHEET		DRAWING NUMBER	
4.4.2.2]		Assembly (Signal Body & Delay Assembly)		1 OF 1		8797996/9255782	
						NEXT HIGHER ASSEMBLY	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD		
<u>Critical</u>	None defined						
Major 101	Parachute improperly tied to swivel		0.40%	3.2	Visual/Manual		
Minor 201	Poor workmanship		1.0%	3.8	Visual		
NOTE:							

DRSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH
4.4.2.23	Assembly (After Assembly Rocket Assembly But Prior to Inserting Rocket Barrel Seal)			8797996/9255782 NEXT HIGHER ASSEMBLY
<u>Critical</u>	None defined			PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Major</u>	None defined			
<u>Minor</u> 201	Tape missing, insufficient or in- correctly applied on cork seal		0.65%	Visual
202	Poor workmanship		1.0%	Visual
NOTES				

DRSMC-QA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G (AR)

PARAGRAPH	TITLE	SHEET		DRAWING NUMBER	
		1	1 OF	8797996/9255782	
					NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u> 1	Color of coating on rocket barrel seal incorrect		100%	3.2	Visual
<u>Major</u> 101 102	Rocket barrel seal missing Thickness of lacquer coating insufficient except that pin holes and surface roughness caused by the cork surface contour are acceptable		0.40%	3.2	Visual
103	Rocket barrel dented		0.40%	3.2	Visual
<u>Minor</u> 201	Poor workmanship		1.0%	3.8	Visual
NOTES:					

DPSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER
				1	1 OF	
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.25	Assembly					8797996/9255782 NEXT HIGHER ASSEMBLY
<u>Critical</u> 1 2	Designation incorrect Firing cap assembled on primer end			100% 100%	3.2 3.2	Visual Visual
<u>Major</u> 101 102 103	Total length, max. Label missing Assembly damaged to the extent that function will be impaired			0.40% 0.40%	3.2 3.2	Gage Visual
<u>Minor</u> 201 202 203 204	Marking misleading or unidentifiable Contents loose Knurl not color coated Poor workmanship			0.40% 0.65% 0.65% 1.0%	3.2 3.2 3.2 3.8	Visual Manual Visual Visual
<u>Notes</u>						

DRSMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

		MIL-S-13303G (AR)	
PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.4.2.26	Container (Prior to Sealing)	1 OF 1	7548414
			NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AGL OR 100%
<u>Critical</u>	None defined		
Major 101	Signal inverted		3.2
102	Packing component missing		3.2
103	Number of assemblies in container incorrect		3.2
Minor 201	poor workmanship		1.0%
			Visual
			Visual
			Visual
			Visual
notes:			

NP SMC-NA (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

CLASSIFICATION OF DEFECTS & TESTS

MIL-S-13303G (AR)

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.27	Container, Sealed						7548414
							NEXT HIGHER ASSEMBLY
CATEGORY							PARAGRAPH REFERENCE / INSPECTION METHOD
<u>Critical</u>							
1			End color missing or incorrect	100%	3.2		Visual
2			Embossing missing or incorrect	100%	3.2		Visual
<u>Major</u>			Key missing	0.40%	3.2		Visual
101			Container damaged	0.40%	3.2		Visual
102			Leak test	100%	3.5		4.5.3
103			Tear strip test	1-2	3.6		4.5.4
104		80					
<u>Minor</u>			Marking misleading or unidentifiable	0.65%	3.2		Visual
201			Contents loose	0.65%	3.2		Manual
202			Protective coating damaged exposing base metal	0.65%	3.2		Visual
203			poor workmanship	1.0%	3.8		Visual
204							

notes

PPSMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

QUALITY CONFORMANCE INSPECTION**CLASSIFICATION OF DEFECTS & TESTS**

MIL-S-13303G(AR)

PARAGRAPH 4.4.2.28	TITLE Wood Packing Box	SHEET 1 OF 1	DRAWING NUMBER 7548415
		NEXT HIGHER ASSEMBLY	
CATEGORY	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH
PARAGRAPH REFERENCE / INSPECTION METHOD			
<u>Critical</u>	None defined		
<u>Major</u> 101	Box damaged to extent that contents are exposed (See Note)	0.40%	Visual
102	Hardware or strapping missing, broken, loose or improperly assembled	0.40%	Visual/Manual
103	Board broken	0.40%	Visual
<u>Minor</u> 201	Contents loose	0.65%	Manual
202	Car seal missing, unsealed or improperly engaged	0.65%	Visual/Manual
203	Marking misleading or unidentifiable	0.65%	Visual
204	Poor workmanship	1.0%	Visual
Notes: This inspection is not intended to duplicate the original inspection of the boxes, but is to preclude acceptance of boxes which have been damaged in handling subsequent to manufacture.			

NP:SMC-0A (D) Form 160, 1 Aug 83 replaces edition of 1 Jul 77 which may be used until exhausted.

MIL-S-13303G(AR)

4.4.3 Testing. The following tests shall be performed using MIL-STD-105 for sampling plan requirements unless otherwise specified.

4.4.3.1 Moisture content (See Table II) - Major defects.

TABLE II

Material

Black powder (see dwg. 8797996)
 Smoke composition (see dwg. 8797998 or 9255783)
 Propellant assembly (see dwg. 8887530)
 Delay composition (see 3.3)
 Wood (see dwg. 8797941)
 Paper (see dwg. 8797936, 8798938, and 8797958)
 Felt (see dwg. 8797837, 8797958, and 8797970)
 Cork (see dwg. 8797922 and 8797923)
 Parachute assembly (see dwg. 8797991)
 Grain, propellant (see 8887529)
 Chipboard (see dwg. 8797927)
 Fiberboard (see dwg. 8797938)

The contractor shall provide adequate controls to insure the materials comply with the requirement. For verification, the contractor shall select and subject to test, one sample of each material from each eight hours production. A composite sample shall not be used. If the moisture content of a sample exceeds the requirements and loading has not begun, the material represented by the sample shall be rejected. If components have been loaded with a material containing excess moisture, the remaining unloaded material and the loaded components shall be rejected. Test procedures shall be as specified in 4.5.1.

4.4.3.2 Functioning. The signal assemblies shall be observed for any evidence of failure to comply with the requirements as classified in Table III when tested as specified in 4.5.2.

TABLE III

Defect
Classification

Premature burst (see 3.4.1)	Critical
Incorrect color (see dwg. 8797998 or 9255784)	Critical
Parachute defects (see 3.4.2)	Major
Altitude at +70°F less than min. (see 3.4.4b)	Major
Angle from the vertical greater than 30 degrees at +70°F under min. (see 3.4.4c)	Major
Average altitude at +70°F under min. (see 3.4.4c)	
Major	

MIL-S-13303G(AR)

Average angle from the vertical over max. at +70°F (see 3.4.4d)	Major
Burning time incorrect at +70°F (see 3.4.4f)	Major
Burning time incorrect at cold temperature (see 3.4.5c)	Major
Smoke emission time over max (see 3.4.4e & 3.4.5b)	Major
Average angle from the vertical over max., at cold temperature (see 3.4.5d)	Major
Signal fails to function (see 3.4)	Major
Assembly bursts at distance of more than one hundred (100) feet from launcher (see 3.4.1)	Major

NOTE: The functioning test shall consist of four (4) distinct phases: Hot temperature - fixture fired, plus 70 degrees - fixture fired, cold temperature - fixture fired, and cold temperature - hand fired. Reduced sampling will be authorized only with three (3) consecutive lots have met the acceptance criteria specified in all four (4) phases. Compliance with the criteria in any one phase will not result in reduced sampling for that phase.

4.4.3.2.1 Hot temperature.

4.4.3.2. 1.1 First three (3) lots. Beginning with the first lot produced and continuing until three (3) consecutive lots have complied with the acceptance criteria specified, twenty-five (25) assemblies shall be selected for this test. The lot shall be rejected if, during the test, a critical defect occurs.

4.4.3.2.1.2 After three (3) consecutive lots. After three (3) consecutive lots have complied with the criteria of 4.4.3.2.1.1, ten (10) assemblies shall be selected from each lot for test. The lot shall be rejected if during the test, a critical defect occurs.

4.4.3.2.2 Ambient 70 ± 5°F.

4.4.3.2.2.1 First three (3) lots. Beginning with the first lot produced and continuing until three (3) consecutive lots have complied with the acceptance criteria specified, one hundred and twenty-five (125) assemblies shall be selected for this test. The lot shall be rejected if, during the test, a critical defect occurs, the average angle from the vertical exceeds the requirement, the average altitude is less than the requirement or if eight (8) or more assemblies exhibit any of the remaining major defects listed in Table III.

MIL-S-13303G(AR)

4.4.3.2.2.2 After three (3) consecutive lots. After three (3) consecutive lots have complied with the criteria of 4.4.3.2.2.1, fifty (50) assemblies shall be selected from each lot for test. The lot shall be rejected if during the test, a critical defect occurs, the average altitude is less than required, the average angle from the vertical exceeds the requirement or if four (4) or more assemblies exhibit any of the remaining major defects listed in Table III.

4.4.3.2.3 Cold temperature.

4.4.3.2.3.1 Fixture fired.

4.4.3.2.3.1.1 First three (3) lots. Beginning with the first lot Produced and continuing until three (3) consecutive lots have been found to be free of critical defects, thirty-two (32) assemblies shall be selected from each lot for this test. The lot shall be rejected if during the test a critical defect occurs (see Table III).

4.4.3.2.3.1.2 After three (3) consecutive lots. After three consecutive lots have complied with the criteria of 4.4.3.2.3.1.1 ten (10) assemblies shall be selected from each lot for this test. If any critical defect occurs, the lot shall be rejected.

4.4.3.2.3.2 Hand fired.

4.4.3.2.3.2.1 First three (3) lots. Beginning with the first lot produced and continuing until three consecutive lots have been found to be acceptable, one hundred and twenty-five (125) assemblies shall be selected from each lot for test. The lot shall be rejected if, during the test, a critical defect occurs, the average angle from the vertical exceeds the requirement, or if eight (8) or more assemblies exhibit any of the remaining major defects listed in Table III. If the combined number of remaining Major defects found in 4.4.3.2.2.1 and this paragraph equals or exceeds twelve (12) the lot shall also be rejected.

4.4.3.2.3.2.2 After three (3) consecutive lots. After three consecutive lots have complied with the criteria of 4.4.3.2.3.2.1, fifty (50) assemblies shall be selected from each lot for test. The lot shall be rejected if during the test, a critical defect occurs, the average angle from the vertical exceeds the requirement or if (4) or more assemblies exhibit any of the remaining major defects listed in Table III.

MIL-S-13303G(AR)

4.4.3.3 Density of propellant grain (see dwg. 8887529).

4.4.3.3.1 Overall density - Critical defect. This test shall be performed 100 percent. Any propellant grain that fails to comply with the requirements shall be classed defective and removed from the lot. The test procedure shall be as specified in 4.5.5.1.

4.4.3.3.2 Density of any section - Critical defect. Twenty-five (25) propellant grains shall be selected from each lot for test. If any section of the grain fails to comply with the requirements, the lot shall be rejected. The test procedure shall be as specified in 4.5.5.2.

4.4.3.4 Swivel Pull test (see dwg. 8798000) - Major defect. Thirty-two (32) swivels shall be selected from each swivel lot for test. If one or more swivels fail to comply with the requirements, the lot shall be rejected. The test procedure shall be as specified in 4.5.11.

4.4.4 Inspection equipment. Inspection equipment required to perform the inspections prescribed in this specification is identified in the Examination (4.3.2) and Test Method (4.4) paragraphs herein. See 6.3 for details concerning responsibility for inspection equipment design and approval.

4.5 Methods of inspection.4.5.1 Moisture content.

4.5.1.1 Smoke composition. The moisture content of the smoke compositions shall be determined in accordance with the method specified in MIL-STD-1234 method 101.1 except that the test drying time shall be 4 hours and vacuum shall be applied.

4.5.1.2 Black powder. The moisture content of the black powder shall be determined in accordance with MIL-STD-1234, Method 102.1.1 using 2 g sample and 70° to 75°C for 4 hrs.

4.5.1.3 Delay composition. An accurately weighed portion of approximately 5 grams (g.) of delay composition shall be placed in a dried tared aluminum weighing dish 2 inches in diameter. A polytetrafluorethylene cover shall be placed on the dish and the dish, contents and cover accurately weighed. The cover shall be removed and the dish and contents heated at $95 \pm 2^{\circ}\text{C}$ for 2 hours min.

MIL-S-13303G(AR)

At the end of the 2 hour drying period, remove the dish from the heat, replace the cover, and cool to room temperature in a desiccator. After cooling, accurately weigh the dish, cover, and contents. The loss in weight shall be calculated as the percent of moisture using the following method:

$$\text{Percent moisture} = \frac{100 (A - B)}{W}$$

where:

- A = weight of dish, cover and contents before drying.
- B = weight of dish, cover and contents after drying.
- c = weight of sample before drying.

4.5.1.4 Felt, fiberboard, cork, wood, paper products and parachute cloth. An accurately weighed portion of at least 10 g. of each material (weighed to the nearest milligram) shall be transferred to a tared weighing dish and placed in an oven and heated at a temperature of $100 \pm 5^{\circ}\text{C}$ for 2 hours. The dish and contents shall be removed from the oven and placed in a desiccator, cooled and weighed. The difference in weight shall be calculated to percentage of moisture in the sample.

4.5.2 Functioning. The following functioning tests shall be performed as specified below.

4.5.2.1 Hot temperature ($160 \pm 5^{\circ}\text{F}$). The packed signals shall be conditioned for a min. of 16 hours at a temperature of $160 \pm 5^{\circ}\text{F}$. The packed signal shall be taken from the conditioning chamber, removed from the metal container and fired vertically from a suitable fixture before the temperature of the signal is allowed to change. The performance of the signal shall be observed for compliance with the requirements.

4.5.2.2 Ambient $70 \pm 5^{\circ}\text{F}$. The signal packed in a sealed container shall be conditioned for a minimum of 16 hours at $+70 \pm 5^{\circ}\text{F}$. After conditioning, the signal shall be removed from the container and fired from a suitable fixture before the signal temperature changes. The functioning performance shall be observed for compliance with the requirements.

4.5.2.3 Cold temperature ($\text{Minus } 65 \pm 5^{\circ}\text{F}$).

4.5.2.3.1 Fixture fired. The packed signals shall be conditioned for a min. of 16 hours at a temperature of $-65 \pm 5^{\circ}\text{F}$. The packed signal shall be taken from the conditioning chamber, removed from the metal container and fired vertically from a suitable fixture before the temperature of the signal is allowed to change. The performance of the signal shall be observed for compliance with the requirements.

MIL-S-13303G(AR)

4.5.2.3.2 Hand fired. The packed signals shall be conditioned for a min. of 16 hours at a temperature $-65 \pm 5^{\circ}\text{F}$. The packed signal shall be taken from the conditioning chamber, removed from the metal container and fired vertically by hand (see 6.4) before the temperature of the signal is allowed to change. The performance of the signal shall be observed for compliance with the requirements.

4.5.2.4 Test validity. If for any reason the proving ground considers that the test conditions have detrimentally affected the test results, the test shall be declared invalid and a new test shall be performed with additional samples.

4.5.3 Leakage. The packed sealed container shall be placed in the test cylinder. Apply air in the cylinder to a pressure of 3 to 5 p.s.i. and hold for eight (8) seconds min. Observe pressure indicator for a drop in pressure during the holding time.
(Non-Destructive Test)

4.5.4 Container tear strip test. The tear strip of the container shall be tested in accordance with procedures specified in MIL-C-10464 for compliance with the requirements specified.
(Destructive Test)

4.5.5 Density of propellant grain.

4.5.5.1 Overall density. The propellant grain shall be accurately measured, the volume determined and converted to cubic centimeters. The grain shall then be accurately weighed and the density in grams per cubic centimeter calculated and compared with the requirement.

4.5.5.2 Density of any section. Each of the grains shall be cut into two (2) approximately equal size cylinders. Each cylinder shall be accurately weighed. Fill the beaker with clean mercury, (see figure 1) insert the immersing mixture and level off the mercury by pressing down with the flat glass plate until it is even with the top of the beaker. Then place the cylinder beneath the prongs of the immersing fixture and level and mercury by pressing down with the flat glass until it is even with the top of the beaker. Catch the excess mercury in a clean evaporating dish. Weigh the mercury displaced by the cylinder. Calculate the density of the cylinder as follows:

$$\text{Density} = \frac{13.54W}{\text{Wt of MG (g) Displaced}}$$

where:

W = weight of the cylinder in grams

4.5.6 Hydrostatic test of casing tube. The casing tube shall be tested in any hydrostatic test device capable of applying the min. pressure for not less than 5 seconds. The tube shall be observed for evidence of failure to comply with the requirements. Any test sample which fails to comply with the applicable requirement shall be classed defective and removed from the lot.
(Non-Destructive Test)

MIL-S-13303G

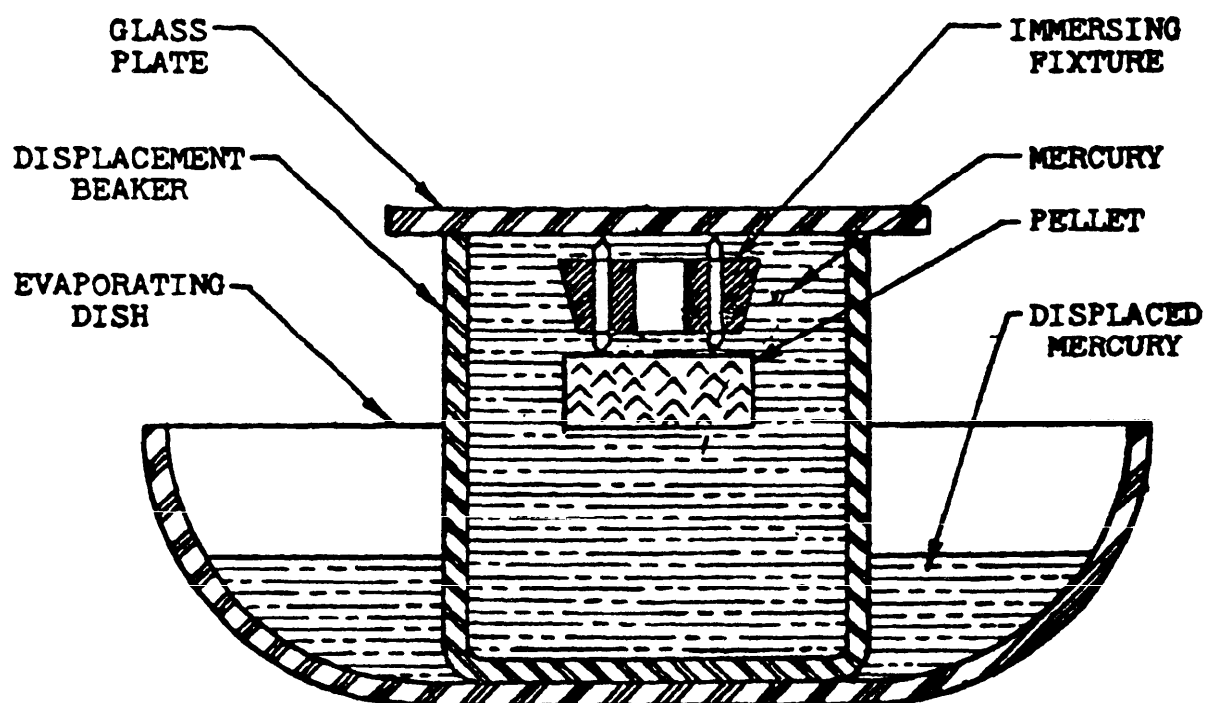


FIGURE I -- Equipment set-up for determining specific gravity

MIL-S-13303G(AR)

4.5.7 Bolt pull strength. The bolts shall be tested in accordance with the procedure and equipment specified in 4.4.4. Any bolt which fails to comply with the applicable drawing requirement shall be classed defective. (Destructive Test) .

4.5.8 Hardness of tail vane. The tail vane shall be tested for hardness as specified in Federal Standard No. 151, Method 243.

4.5.9 Push test of firing cap and spring clip assembly. The firing cap and spring clip shall ~~be~~ tested in accordance with the equipment and procedure specified in 4.4.4. Any assembly failing to comply with the applicable drawing requirement shall be classed defective. (Non-Destructive Test)

4.5.10 Weld peel test. The welds on the tail assembly shall be tested in accordance with the procedures specified in MIL-W-12332. After test the assembly shall be examined to determine compliance with the drawing requirements. (Destructive Test)

4.5.11 Swivel pull test. The swivel shall be tested applying the specified weight in accordance with the procedures and equipment specified in 4.4.4. (Destructive Test)

5. PACKAGING

5.1 Preservation.

5.1.1 Level A. The signals shall be unit packed in accordance with dwg. ~~7548414.~~

5.2 Packing.

5.2.1 Level A. Packing shall be in accordance with dwg. ~~7548415.~~

5.3 Marking. Marking shall be as specified on dwgs. ~~7548414 and 7548415.~~

6. NOTES

6.1 Intended use. The components covered by this specification are intended for use on the Signals, Smoke, Ground, Hand Held Parachute, Green Smoke, M128A1 Red Smoke, M129A1 and Yellow Smoke M194.

6.2 Ordering data. See MIL-A-48078.

MIL-S-13303G(AR)

6.3 Submission of designs for approval. Contractor designs shall be approved by the Government prior to fabrication or procuring the equipment. Designs shall be submitted for approval to ARDC, DRSMC-QAT-I (D), Dover, New Jersey 07801 in accordance with the stipulations, time frame and distribution specified in the Contract Data Requirements List (DD Form 1423) or in the contract. Partial submission of inspection equipment designs is permissible and encouraged. However, the completion date for design review will be based on the date of the final submission of designs. ARDC design review will normally be accomplished within one month after receipt.

6.4 Alternate test methods. Prior approval of the Contracting Officer is required for use of equivalent test methods. A description of the proposed method should be submitted thru the Contracting Officer to: Commander, US Army Armament Research and Development Center, ATTN: DRSMC-QAT-I(D), Dover, New Jersey 07801. This description should include but not be limited to the procedures used, the accuracy and precision of the method, test data to demonstrate the accuracy and precision and drawings of any special equipment required.

6.5 Hand firing. Personnel hand firing signals after cold temperature conditioning should wear protective gloves and other suitable protective clothing.

6.6 Drawings. Drawings listed in Section 2 of this specification under the heading "US ARMY ARMAMAMENT RESEARCH AND DEVELOPMENT CENTER (ARDC)" may also include drawing prepared by and identified as US Army Armament Research and Development Command (ARRADCOM), Edgewood Arsenal, Frankford Arsenal, Rock Island Arsenal or Picatinny Arsenal drawings. Technical data originally prepared by these activities is now under cognizance of ARDC.

6.7 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Custodian:
Army-AR

Preparing activity:
Army-AR

(Project 1370-A173)