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DETAIL SPECIFICATION
PRIMERS, PERCUSSION, STYPHNATE AND CHLORATE TYPES, FOR SMALL ARMS AMMUNITION

Inactive for new design after 12 December 2009

This specification is approved for use by all Departments and Agencies of the Department of Defense within the distribution limitations noted at the bottom of the page.

1. SCOPE

1.1 Scope. This specification covers the requirements, examinations, and tests for percussion primers, percussion, styphnate and chlorate types, for small arms ammunition used for igniting the propellant charge in small arms ammunition.

1.2 Classification. Primers covered by this specification must be of the following classes as specified.

1.2.1 Types. The type primers are as follows:

Type 1 - Primers procured, packaged and shipped as end Items.
Type 2 - Primers manufactured by a small arms ammunition prime contractor and intended for assembly into cartridges by the same contractor.

2. APPLICABLE DOCUMENTS

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

Comments, suggestions, or questions on this document should be addressed to: Commander, U.S. Army ARDEC, ATTN: RDAR-QES-E, Picatinny Arsenal, New Jersey 07806-5000 or e-mailed to ardecstdzn@conus.army.mil . Since contact information can change, you may want to verify the currency of this information using ASSIST Online database at http://assist.daps.dla.mil .

AMSC N/A FSC 1305

2.2 Government documents.

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

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-P- 46296C - Primer, Percussion, M82, Loading, Assembling and Packing

DEPARTMENT OF DEFENSE STANDARDS

MIL-STD-1168 - Ammunition Lot Numbering and Ammunition Data Card

MIL-STD-1916 - DoD Preferred Methods for Acceptance of Product

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

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

U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (ARDEC) PUBLICATIONS

TECP-700-700 Vol. III	-	Manual of Test Methods for Small Arms Ammunition
ORD-SIP-S314	-	Visual Inspection Standards for Small Arms Ammunition Primer Defects
SCATP-5.56MM	-	Small Caliber Ammunition Test Procedures-5.56mm Cartridges
SCATP-5.56MM	-	Small Caliber Ammunition Test Procedures-5.56mm (Heavy Bullet) Cartridges
SCATP-7.62MM	-	Ammunition Ballistic Acceptance Test Methods - Test Procedures for 7.62mm Cartridges
SCATP- CAL..45	-	Ammunition Ballistic Acceptance Test Methods - Test Procedures for Caliber .45 Cartridges

(Application for copies should be addressed to Quality Engineering and System Assurance, U.S. Army, ARDEC, Picatinny Arsenal, NJ 07806-5000, ATTN: RDAR-QEM-D or email qesa-qem-d@conus.army.mil .)

U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER (ARDEC) DRAWINGS

5001168	-	Primer (Chlorate) for Caliber .45,
5033178	-	Primer (Chlorate) for Caliber .50
7645332	-	Primer (Styphnate) Caliber .30 and Caliber .30 Blank
10534279	-	Primer (Styphnate) for 5.56mm
8594094	-	Primer (Styphnate) for 7.62mm Match
10522621	-	Primer (Styphnate) for 7.62111m, 7.62mm Blank, 7.62mm Grenade and 7.62mm Match, and Caliber .30
10535489	-	Primer (Styphnate) for 7.62mm Match, 7.62mm Blank, Caliber .30 and Caliber .30 Match
7645336	-	Primer (Styphnate) for Caliber .45 and Caliber .45 Blank
7645339	-	Primer (Styphnate) for Caliber .50
8861197	-	Primer, Percussion, M82 Assembly
5000131	-	Primer No.26
8595819	-	Primer No. 36 M
10522382	-	Primer, Composition, FA-70
10522383	-	Primer, Composition, FA-90A
10522388	-	Primer, Composition, FA-956
10535491	-	Primer, Composition, FA-1023
6006156	-	Case, Cartridge, Caliber .30 Blank
9378276	-	Case, Cartridge, 5.56mm Dummy
10524200	-	Case, Cartridge, 5.56mm
10534927	-	Case, Cartridge, 5.56mm Blank
11820451	-	Case, Cartridge, 5.56mm
7553772	-	Case, Cartridge, 7.62mm Grenade
8597284	-	Case, Cartridge, 7.62mm Blank
10521997	-	Case, Cartridge, 7.62mm
8597567	-	Case, Cartridge, 7.62mm Match
12977196	-	Case, Cartridge, 7.62mm M118LR
6000501	-	Case, Cartridge, Caliber .45
10523084	-	Case, Cartridge, Caliber .45 Blank
7639487	-	Case (Steel), Cartridge, Caliber .45 Blank
5502646	-	Case, Cartridge, Caliber .50
6006152	-	Cartridge, Caliber .30 Blank, M1909
8595432	-	Cartridge, Caliber .30 Match, M72
9342868	-	Cartridge, 5.56mm, Ball, M193
10523632	-	Cartridge, 5.56mm, Ball, M193
10542379	-	Cartridge, 5.56mm, Blank, M200
8597555	-	Cartridge, 7.62mm, NATO, M118
10521998	-	Cartridge, 7.62mm, NATO, Ball, M80
7553707	-	Cartridge, 7.62mm, NATO, Grenade Rifle, M64
8597283	-	Cartridge, 7.62mm, NATO, Blank, M82
6000503	-	Cartridge, Caliber .45, Ball, M1911
10523085	-	Cartridge, Caliber .45, Blank, M9

7635291 - Cartridge, Caliber .45, Ball, M9 (Steel Case)
7553097 - Cartridge, Caliber .45, Ball, M33

(Copies of these drawings are available from U.S. Army ARDEC, ATTN: RDAR-EIS-PE, Picatinny, NJ 07806-5000, or email pica.drawing.request@conus.army.mil.)

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

3. REQUIREMENTS

3.1 First article. When specified (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.3.

3.2 Conformance inspection. A sample of the completed primers shall be subjected to conformance inspection in accordance with 4.4.

3.3 Components and assemblies. The components and assemblies shall comply with all requirements specified in the applicable specifications and drawings.

3.3.1 M82 percussion primer (When assembled in the cartridge, 7.62mm. NATO, Ball. M80). When No. 34 primer is made in accordance with Dwg. 10522621 for the M82 percussion primer, it shall meet the requirements of this drawing when tested in the cartridge, 7.62mm. NATO, Ball. M80.

3.4 Sensitivity. The sensitivity shall be in accordance with the limits specified in Table I for each type of primer:

TABLE I. Primer sensitivity limits

Primer	Required Case	Height in Inches	
		(H+5s fire)	(H-2s no-fire)
Dwg. No. 10522621	7.62mm Match	15	3
Dwg. No. 10535489	7.62mm Match	15	3
Dwg. No. 10522621	7.62mm	15	3
Dwg. No. 8594094	7.62mm Match	15	3
Dwg. No. 10522621	7.62mm Grenade	15	3
Dwg. No. 10522621	7.62mm Blank	15	3
Dwg. No. 10535489	7.62mm Blank	15	3
Dwg. No. 7645332	Caliber .30 Blank	15	2 ½
Dwg. No. 8594094	Caliber .30 Blank	15	2 ½
Dwg. No. 7645336	Caliber .45	16	2 ½
Dwg. No. 5001168	Caliber .45	16	2 ½
Dwg. No. 7645339	Caliber .50	15	2 ½
Dwg. No. 5033178	Caliber .50	15	2 ½
Dwg. No. 7645336	Caliber .45 Blank	18	3
Dwg. No. 5001168	Caliber .45 Blank	18	3

TABLE I. Primer sensitivity limits - Continued

Dwg. No. 10534279	5.56mm	(H+3s fire) 12	(H-3s no-fire) 3
Dwg. No. 10534279	5.56mm Blank	13	2 ½

3.4.1 M82 percussion primer. When the No. 34 primer is made in accordance with Dwg. No. 10522621 for the M82 percussion primer, it shall meet the requirements as specified in Nonfunctioning and Functioning without black powder of MIL-P-46296.

3.5 Action time. The action time (see 6.3) of the cartridge assembled with a primer produced in accordance with Dwgs. 5000131, 5033178, 7645339, 8594094, 8595819, 10522621, 10534279 or 10535489 shall not exceed 0.0025 seconds.

3.6 Function and casualty. The primer when assembled into cartridges in accordance with Dwgs. 6000503, 6006152, 7553097, 7553707, 7635291, 8595432, 8597283, 8597555, 9342868, 10521998, 10523085, 10523632 or 10542379 shall function without casualty.

3.7 Velocity. The average velocity and the standard deviation of the velocities of cartridges conditioned at 70° ± 2° Fahrenheit (F) shall not exceed the requirements for the cartridges in accordance to Table II.

TABLE II. Velocities

Cartridges	Average Velocity Feet Per Second (ft/sec)	Max Std. Dev. of Velocities
5.56mm, Ball, M193	3165 ± 40 at 78 feet from muzzle	40
5.56mm, Ball, M855	3020 ± 40 at 78 feet from muzzle	40
7.62mm, Grenade, M64	160 ± 5 at 5.6 feet forward end of Grenade	2
7.62mm, NATO, Special Ball, M118: Long Range	2580 ± 30 at 78 feet from muzzle	28
7.62mm, Ball M80	2750 ± 30 at 78 feet from muzzle for gilding metal clad steel jacketed bullets or 2670 ± 30 at 78 feet from muzzle for gilding metal jacketed bullets	32
Cal. .45, Ball M1911	855 ± 25 at 25.5 feet from muzzle	27
Cal. .50, Ball M33	2905 ± 30 at 78 feet from muzzle	36

3.8 Chamber pressure. The average chamber pressure for the cartridges conditioned at 70° ± 2° Fahrenheit (F) shall not exceed the requirement for the cartridges in accordance with Table III.

TABLE III. Chamber pressure requirement

Cartridges	Pressure
5.56mm, Ball, M193	52,000 psi, max.
5.56mm, Ball, M855	58,700 psi, max.
7.62mm, Ball, M80	57,000 psi, max.
7.62mm, NATO, Special Ball, M118: Long Range	52,000 psi, max.
Cal. .45, Ball M1911	19,000 psi, max.
Cal. .50, Ball, M33	65,000 psi, max.

3.9 Priming composition. The priming composition for the following primers shall be accordance with Table IV.

TABLE IV. Primers

Primers	Name	Drawing
#26	Composition, FA-70	10522382
#28	Composition, FA-70 or Composition, FA-90A	10522382 or 10522383
#34 and #41	Composition, FA-956	10522388
#43	Composition, FA-1023	10535491
50 M	Primer (Styphnate) For Caliber .50	7645339

3.10 Workmanship.

3.10.1 Metal defects. The primer shall be free of cracks, laminations, nicks, dents, scratches, and other metal defects. .

3.10.2 Foreign matter. The primer shall be free of corrosion, stains, discoloration, dirt, oil and other foreign matter.

4. VERIFICATION

TABLE V. Requirement / verification cross-reference matrix

Method of Verification 1 – Analysis 2 – Demonstration 3 – Examination 4 – Test						Classes of Verification A – First article B – Conformance		
SECTION 3 REQUIREMENTS		VERIFICATION METHOD				VERIFICATION CLASS		SECTION 4 VERIFICATION
Para.	Description	1	2	3	4	A	B	
3.1	First article			X	X	X		4.3
3.2	Conformance Inspection					X	X	4.4
3.3	Components and assemblies					X	X	4.3, 4.4
3.3.1	M82 percussion primer (When assembled in the cartridge, 7.62mm. NATO, Ball. M80).				X	X	X	4.4.2.1 – 4.4.2.6 4.5.8
3.4	Sensitivity				X	X	X	4.5.1
3.5	Action time				X	X	X	4.5.2
3.6	Function and casualty				X	X	X	4.5.3
3.7	Velocity				X	X	X	4.5.4
3.8	Chamber pressure				X	X	X	4.5.5
3.9	Priming composition	X				X	X	4.5.6
3.10.1	Metal defects			X		X	X	Visual
3.10.2	Foreign Material			X		X	X	Visual

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

a. First article inspection (see 4.3).

b. Conformance inspection (see 4.4).

4.2 Inspection conditions. Unless otherwise specified, all inspection shall be performed in accordance with the test conditions specified in 4.5.

4.3 First article. When specified, a sample shall be subject to first article verification in accordance to Table VI.

4.3.1 First article quantity. The first article sample shall consist of the assemblies, components and test specimens listed below in Table VI.

4.3.2 Inspection to be performed. The first article inspection shall be performed in accordance with Table VII.

4.3.3 First article rejection. If any item of the sample fails to comply with all first article requirements, the first article shall be rejected.

TABLE VI. First article verification quantities

Part description	Quantity
Completed primer	3,500
Anvil	3,500
Cup	3,500

TABLE VII. First article inspection

Part	Inspection method
Anvil	A sample of 320 shall be selected from the sample of 3,500 anvils and inspected for all dimensions on the drawing that are not listed as advisory.
Cup	A sample of 320 shall be selected from the sample of 3,500 cups inspected for all dimensions on the drawing that are not listed as advisory.
Completed Primer	The entire sample of 3,500 shall be subjected to all the critical and 100% major examinations listed in 4.2.1 through 4.2.6. Functional testing will be in accordance with Table VIII with quantities as specified in Table VIII. A sample of 320 shall be selected from the 3,500 primers and subjected to all the major examinations listed in 4.4.2.1 through 4.4.2.6. A sample of 80 shall be selected from the above sample of 320 primers and subjected to all the minor examinations listed in 4.4.2.1 through 4.4.2.6.

4.3.2 Rejection. If any assembly, component or test specimen fails to comply with any of the applicable requirements, the first article sample shall be rejected.

4.4 Conformance Inspection.

4.4.1 Lot formation. Lot formation shall be in accordance with MIL-STD-1168. Unless otherwise specified, component ingredients shall be homogeneous, inspected, and tested.

4.4.2 Examinations and tests.

a. Classification of characteristics**.** For the conformance inspection paragraphs 4.4.2.1 thru 4.4.2.8, one hundred percent examination shall be performed for all critical and major defects listed as 100% examination. For the remaining, major and minor characteristics shall be performed in accordance with Table II of MIL-STD-1916.

Paragraph 4.4.2.1	Title Primer 1/	Sheet 1 of 1		Drawing Number 2/ Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
Critical	None defined			
Major				
101	No anvil	100%	3.2	Visual
102	Double Anvil	100%	3.2	Visual
103	No charge	100%	3.2	Visual
104	Double or multiple foil - where applicable	Level V	3.2	Visual
105	Slipped foil - where applicable	Level IV	3.2	Visual
106	Inverted or sideways inserted anvil	100%	3.2	Visual
107	Crushed or mutilated	Level V	3.2	Visual
108	Deep seated anvil	Level IV	3.2	Visual
109	Low anvil	Level IV	3.2	Visual
110	Loose anvil	Level V	3.2	Visual
111	Stained or corroded metallic components	Level V	3.2	Visual

Note
1/. Refer to ORD-SIP-S314 for visual defect standards. In the event of conflict between this specification and ORD-SIP-S314 as to defect classification, the classification specified in this specification apply.
2/. 5001168, 5033178, 7645332, 10534279, 8594094, 10522621, 10535489, 7645336, 7645339, 8861197, 10522382, 10522383, 10522388, 10535491.

Paragraph	Title	Sheet 1 of 2		Drawing Number
4.4.2.2	Cup 1/			3/
				Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
Critical	None defined			
Major				
101	Bell shaped	Level V	3.2	Visual
102	Brass Shavings	Level V	3.2	Visual
103	Cracked	Level V	3.2	Visual
104	Crooked or eared	Level V	3.2	Visual
105	Dents	Level IV	3.2	Visual 2/
106	Flat on crowned cup (where applicable)	Level IV	3.2	Visual
107	Crowned on flat cup (where applicable)	Level IV	3.2	Visual
108	High crown	Level IV	3.2	Visual
109	Laminated metal	Level IV	3.2	Visual
110	Ringed	Level IV	3.2	Visual
111	Scratched	Level IV	3.2	Visual 2/
112	Nicked	Level V	3.2	Visual 2/
113	V or U	Level IV	3.2	Visual

Note
1/. Refer to ORD-SIP-S314 for visual defect standards. In the event of conflict between this specification and ORD-SIP-S314 as to defect classification, the classification specified in this specification apply.
2/. These characteristics will only be checked for the major classification of the defect as depicted in ORD-SIP-S314. The minor classification will not be counted as a defect.
3/. 6006156, 9378276, 10524200, 10534927, 11820451, 7553772, 8597284, 10521997, 8597567, 12977196, 6000501, 10523084, 7639487, 5502646, 6006152, 9342868, 10523632, 10542379, 8597555, 10521998, 7553707, 8597283, 6000503, 10523085, 7635291, 7553097, 8658516.

Paragraph 4.4.2.2 (continued)	Title Cup 1/	Sheet 2 of 2		Drawing Number 2/ Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
<u>Minor</u>				
201	Bad bevel	Level II	3.2	Visual
202	Brass Shavings	Level II	3.2	Visual
203	Cracked	Level II	3.2	Visual
204	Crooked or eared	Level II	3.2	Visual
205	Flat on crowned cup (where applicable)	Level II	3.2	Visual
206	Crowned on flat cup (where applicable)	Level II	3.2	Visual
207	Laminated metal	Level II	3.2	Visual
208	Ringed	Level II	3.2	Visual
209	V or U	Level II	3.2	Visual
210	Low cup	Level II	3.2	Visual

Note
1/. Refer to ORD-SIP-S314 for visual defect standards. In the event of conflict between this specification and ORD-SIP-S314 as to defect classification, the classification specified in this specification apply.
2/. 6006156, 9378276, 10524200, 10534927, 11820451, 7553772, 8597284, 10521997, 8597567, 12977196, 6000501, 10523084, 7639487, 5502646, 6006152, 9342868, 10523632, 10542379, 8597555, 10521998, 7553707, 8597283, 6000503, 10523085, 7635291, 7553097, 8658516.

Paragraph	Title	Sheet 1 of 1		Drawing Number 2/
4.4.2.3	Anvil 1/			Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
Critical	None defined			
Major				
101	Chipped	Level V	3.2	Visual
102	Filled	Level V	3.2	Visual
103	Partial	100%	3.2	Visual
104	No Vent Holes	100%	3.2	Visual
105	Laminated Metal	Level V	3.2	Visual
Minor				
201	Burred	Level II	3.2	Visual
202	Chipped	Level II	3.2	Visual
203	Unsymmetrical vent holes	Level II	3.2	Visual

Note
1/. Refer to ORD-SIP-S314 for visual defect standards. In the event of conflict between this specification and ORD-SIP-S314 as to defect classification, the classification specified in this specification apply.
2/. 6006156, 9378276, 10524200, 10534927, 11820451, 7553772, 8597284, 10521997, 8597567, 12977196, 6000501, 10523084, 7639487, 5502646, 6006152, 9342868, 10523632, 10542379, 8597555, 10521998, 7553707, 8597283, 6000503, 10523085, 7635291, 7553097, 8658516.

Paragraph 4.4.2.4	Title Foil 1/	Sheet 1 of 1		Drawing Number 2/ Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
Critical Major 101 Minor	None defined Stained – where applicable None defined	100%	3.2	Visual

Note
1/. Refer to ORD-SIP-S314 for visual defect standards. In the event of conflict between this specification and ORD-SIP-S314 as to defect classification, the classification specified in this specification apply.
2/. 6006156, 9378276, 10524200, 10534927, 11820451, 7553772, 8597284, 10521997, 8597567, 12977196, 6000501, 10523084, 7639487, 5502646, 6006152, 9342868, 10523632, 10542379, 8597555, 10521998, 7553707, 8597283, 6000503, 10523085, 7635291, 7553097, 8658516.

Paragraph 4.4.2.5	Title Pellet 1/	Sheet 1 of 1		Drawing Number 2/ Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
Critical 1	Light	100%	3.2	Visual
Major 101	Heavy	Level V	3.2	Visual
Minor	None defined			

Note
1/. Refer to ORD-SIP-S314 for visual defect standards. In the event of conflict between this specification and ORD-SIP-S314 as to defect classification, the classification specified in this specification apply.
2/. 6006156, 9378276, 10524200, 10534927, 11820451, 7553772, 8597284, 10521997, 8597567, 12977196, 6000501, 10523084, 7639487, 5502646, 6006152, 9342868, 10523632, 10542379, 8597555, 10521998, 7553707, 8597283, 6000503, 10523085, 7635291, 7553097, 8658516.

Paragraph	Title	Sheet 1 of 1		Drawing Number
4.4.2.6	Gaging Primer			1/
				Next Higher Assembly
Classification	Examination or Test	Conformance Criteria	Requirement Paragraph	Inspection Method Reference
Critical	None defined			
Major				
101	Diameter	Level III	3.2	Gauge
102	Excessive difference between long and short axis diameters, where applicable.	Level III	3.2	Gauge
Minor				
201	Height	Level II	3.2	Gauge

Note
1/. 6006156, 9378276, 10524200, 10534927, 11820451, 7553772, 8597284, 10521997, 8597567, 12977196, 6000501, 10523084, 7639487, 5502646, 6006152, 9342868, 10523632, 10542379, 8597555, 10521998, 7553707, 8597283, 6000503, 10523085, 7635291, 7553097, 8658516.

4.4.3 Tests. The tests listed in Table VIII shall be conducted as specified in 4.5.

4.4.3.1 Class 1 primers (see 1.2). Each lot of class 1 primers: shall be subjected to all the tests listed in Table VIII.

4.4.3.2 Class 2 primers. Each lot of class 2 primers shall be subjected to only the priming composition and sensitivity tests listed in Table IX. A reduced inspection level may be applied for priming composition in accordance with note 4 of Table VIII.

4.4.3.3 Test samples. The quantities for the various tests shall be as specified in Table VIII. Only primers having met the visual and dimensional requirements shall be used in the ballistic tests, and shall have been selected in such a manner that the sample is representative of the entire lot. The primers selected shall be thoroughly mixed before being divided into samples for the various tests.

TABLE VIII. First article and conformance inspection

Classification	Primer Drawing	Cartridge Drawing	Examination or Test	Conformance Criteria			Requirement Paragraph	Inspection Method Reference
				Qty	Acc	Rej		
Major 101	10534279	10534297, 5.56mm Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	10534279	10524200, 5.56mm	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	7645332	6006156, Cal. .30 Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	8594094	6006156, Cal. .30 Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	10522621	7553772, 7.62mm, Grenade	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	10522621	10521997, 7.62mm	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	10522621	8597567, 7.62mm, Match	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	8594094	8597567, 7.62mm, Match	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	10535489	8597567, 7.62mm, Match.	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	10535489	8597284, 7.62mm, Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	5001168	6000501, Cal. .45	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	7645336	6000501, Cal. .45	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	7645336	10523084, Cal. .45, Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	7645336	7639487, Cal. .45, Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	5001168	10523084, Cal. .45, Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	5001168	7639487, Cal. .45, Blank	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	5033178	5502646, Cal. .50	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 101	7645339	5502646, Cal. .50	Sensitivity	600	(Note 1)		3.4	4.5.1
Major 102	10534279	10534297, 5.56mm Blank	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2
Major 102	10534279	10524200, 5.56mm	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2
Major 102	10534279	9342868, 5.56mm	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2
Major 102	10522621	6006156, Cal. .30 Blank	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2
Major 102	10522621	6006156, Cal. .30 Blank	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2
Major 102	8594094	8597555, 7.62mm, Match	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2
Major 102	10535489	8597555, 7.62mm Match	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2
Major 102	5033178	5502646, Cal. .50	Action Time (Note 3 & 4)	50	(Note 2)		3.5	4.5.2

TABLE VIII. First article and conformance inspection - Continued

Major 102	7645339	5502646, Cal. .50	Action Time (Note 3 & 4)	50	(Note 2)	3.5	4.5.2
Major 102	7645339	7553097, Cal. .50	Action Time (Note 3 & 4)	50	(Note 2)	3.5	4.5.2
Major 103	10534279	10542379, 5.56mm Blank	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	10534279	9342868, 5.56mm	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	10534279	10523632, 5.56mm	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	8594094	6006152, Cal. .30, Blank	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	7645332	6006152, Cal. .30, Blank	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	10522621	10521998, 7.62mm	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	10522621	8597555, 7.62mm, Match	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	8594094	8597555, 7.62mm, Match	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	10535489	8597555, 7.62mm, Match	Function and Casualty (Note 3 & 4)	300	(Note 5)	3.6	4.5.3
Major 103	10535489	8597283, 7.62mm, Blank	Function and Casualty (Note 3, & 4)	300	(Note 5)	3.6	4.5.3
Major 103	10522621	8597283, 7.62mm, Blank	Function and Casualty (Note 3, & 4)	300	(Note 5)	3.6	4.5.3
Major 103	5001168	6000503, Cal. .45	Function and Casualty (Note 3, & 4)	286	(Note 5)	3.6	4.5.3

TABLE VIII. First article and conformance inspection – Continued

Major 103	7645336	6000503, Cal. .45	Function and Casualty (Note 3, & 4)	286	(Note 5)	3.6	4.5.3
Major 103	7645336	10523085, Cal .45, Blank	Function and Casualty (Note 3, & 4)	154	(Note 5)	3.6	4.5.3
Major 103	7645336	7635291, Cal. .45, Blank	Function and Casualty (Note 3, & 4)	154	(Note 5)	3.6	4.5.3
Major 103	5001168	10523085, Cal. .45, Blank	Function and Casualty (Note 3, & 4)	154	(Note 5)	3.6	4.5.3
Major 103	5001168	7635291, Cal. .45, Blank	Function and Casualty (Note 3, & 4)	154	(Note 5)	3.6	4.5.3
Major 103	5033178	7553097, Cal. .50	Function and Casualty (Note 3, & 4)	400	(Note 5)	3.6	4.5.3
Major 103	7645339	7553097, Cal. .50	Function and Casualty (Note 3, & 4)	400	(Note 5)	3.6	4.5.3
Major 104		Applicable drawing (See note 3)	Velocity	20	(Note 6)	3.7	4.5.4
Major 105		Applicable drawing (See note 3)	Chamber pressure	20	(Note 6)	3.8	4.5.5
Major 106		Applicable drawing	Priming composition	Note 8	(Note 7)	3.9	4.5.6

TABLE VIII. First article and conformance inspection - Continued

Note 1. Failure of the primers to comply with the requirements shall be cause for rejection of the lot subject to the testing of a second sample consisting of double the quantity used in the first test. Failure of the primers of the second sample to comply with the requirements shall be cause for rejection of the lot. For first article, no retest is permitted. (See figure 1 for calculation sheet for sensitivity and skewness.) Note 2. Failure of two or more cartridges to comply with the applicable requirements shall be cause for rejection of the lot; if one cartridge fails in the first test, a second sample, consisting of double the quantity used in the first test, may be tested, providing that the action time of the failing cartridge does not exceed 0.020 seconds. If any failing cartridges are found in the second test, the primer lot shall be rejected. For first article, if one or more cartridges fail, the first article sample shall be rejected. No retest is permitted. Note 3. All cartridges for these tests shall be loaded with propellant from an acceptance lot with known level of performance. Note 4. Reduced testing. Testing for these requirements may be reduced if five consecutive lots, all using the same primer mix and production process, have met the applicable requirements. The reduced plan shall consist of testing one out of every five lots submitted. The lots tested under the reduced plan shall be selected randomly. Testing shall be resumed on each lot when the primer formulation or production process changes. Testing shall be resumed on each lot for a particular requirement when the requirement specified is not met. Note 5. The lot shall be rejected when function and casualty defects plus defects observed in all other firing tests exceed the acceptance number for the cumulative sample in Table IX. If the number of defects found in the first test exceeds the acceptance number for the first sample, but is equal to or less than the acceptance number for the cumulative sample, a second sample consisting of double the quantities specified under function and casualty test, shall be fired in all the service weapons specified there for. This procedure shall apply regardless of the weapon or weapons in which the firing defects occurred in the first test. If the total number of defects in the combined first and second samples exceeds the acceptance number for the cumulative sample, the lot shall be rejected. If, in testing a second sample, defects other than those for which the second sample is being tested should occur to the extent that they exceed the acceptance number for the cumulative sample, the primer lot shall be rejected. For first article, acceptance shall be based on the acceptance number for the first sample. No retest is permitted. Note 6. This test shall be performed on the first article sample only. Failure to comply with applicable requirements will result in failure of first article. Note 7. Failure of the priming composition to comply with the applicable requirements shall be cause for rejection of the initial production sample. For primer lot acceptance, if the primer composition fails to comply with the applicable requirements, a second sample shall be selected and analyzed. If the second sample complies, the lot shall be accepted. Testing for the priming composition may be reduced if five consecutive lots, all using the same primer mix and production process, have met the requirements of 3.9. The reduced plan shall consist of testing one out of every ten lots produced. The lots tested under the reduced plan shall be selected randomly. Testing of every lot shall be resumed when the requirements of 3.9 are not complied with or when the primer mix or production process is changed. Note 8. Number of primers necessary to yield 3 grams of priming composition. Note 9. This test shall be performed on No. 34 primers for use in M82 primers.

TABLE IX. Firing defect acceptance criteria

Defects	Acceptance Number	
	First Sample	Cumulative (First & Second Sample)
Misfire (Failure of primer to fire)	0	1
Primer cup base radius split or rupture	0	1
Primer perforation	0	1
Squib (incomplete function of primer)	0	1

4.5 Methods of inspection.

4.5.1 Sensitivity test. Ambient temperature - The primer shall be inserted into the primer pocket of the cartridge case so that the surface of the primer cup, when measured from the center of the primer, is within the tolerance specified on the cartridge drawing. The test shall be performed in accordance with the complete run-down method described in TECP 700-700, Vol. III, SCATP - 5.56mm, SCATP - 5.56mm (Heavy Bullet), SCATP - 7.62mm or SCATP – Cal. .45 as applicable. A retest is permitted using a sample of 100 primers at each height. .

4.5.1.1 Two - height method. The two-height method of testing for sensitivity may be used in lieu of the complete run-down of 4.5.1 test when sensitivity results for five consecutive lots have been found to comply with the requirements of 3.4 and computed skewness values are found to be not greater than .787 or not less than -.787 (see 6.4). However, one out of every 10 lots submitted shall be tested by the complete run-down method. Failure in any test to meet sensitivity or skewness requirements shall be considered sufficient cause to revert to use of the run-down method on each lot. The two-height test shall be conducted in accordance with the two-height method described in SCATP - 5.56mm or SCATP - 5.56mm (Heavy Bullet). A retest is permitted. The retest shall be conducted using a sample of 100 primers at each height. All retests shall be conducted using the complete run-down method of 4.5.1.

4.5.2 Action time. The primers shall be inserted and crimped in cartridges cases. The primed cases shall be assembled into cartridges and fired for action time. The tests shall be conducted in accordance with the methods and procedures of SCATP - 5.56mm or SCATP - 5.56mm (Heavy Bullet) as applicable.

4.5.3 Function and casualty. The primer shall be inserted and crimped in cartridge cases. The primed cases shall be assembled into cartridges and fired for function and casualty in accordance to Table X. The weapon used shall be at room temperature, shall be not less than 60 degrees F at the beginning of tests. The tests shall be conducted in accordance with TECP 700-700, Vol. III and the following: SCATP – 5.56mm, SCATP – 5.56mm (Heavy Bullet), SCATP – 7.62mm, SCATP – Cal. .45 as applicable.

TABLE X. Function and casualty

Weapon	No. of Cartridges	Bursts of Cartridges	Intervals between magazines, clips
Rifle, 7.62mm M14	Ball, M80 & Blank M82, 100 in magazines rapid fire	Alternate between rapid fire and full automatic	30 seconds, max
	Special Ball, M118, 300 in magazines rapid fire	Alternate between rapid fire and full automatic	30 seconds, max
Gun, Machine 7.62mm, M240B	Blank, M82, 200 in links in	Bursts of 100	N/A
	Ball, M80, 200 in links in	Bursts of 50	N/A
Rifle, 5.56mm, M16A2	Ball, M855, 100 in magazines	Per SCATP	per SCATP-5.56mm (Heavy Bullet)
Gun, Machine 5.56mm, M249	Ball, M855, 200 in links	Per SCATP	per SCATP-5.56mm (Heavy Bullet)
Gun, Machine Cal. .50, M85	Ball, M33, 200 in links in	Bursts of 100	per TECP 700-700 (Vol. III)
Gun, Machine Cal. .30, M1919A4	Blank, M1909, 200 in links	Bursts of 100	Complete cooling
Pistol, Automatic Cal. .45, M1911A1	Ball, M1911, 196 in clips	Rapid fire	Cool after each 49 ctgs.
	Blank, M9, 154	Single shot	Cool after 77 ctgs.
Gun, Sub-Machine, Cal. .45, M3A1	Ball, M1911, 90 in magazines in	Bursts of 30	30 seconds, max
Gun, Machine, Cal. .50, M3, ACFT, Basic	Ball, M33, 200 links, in	Bursts of 100	Complete cooling
Rifle, 5.56mm,M16	Ball, M193 and Blank. M200, 300 in magazines	Rapid fire	30 seconds, max

4.5.4 Velocity. The primer shall be inserted and crimped in cartridge cases. The primed cases shall be assembled into cartridges and then tested in accordance with TECP 700-700, Vol. III; SCATP- 5.56mm,SCATP - 5.56mm (Heavy Bullet), SCATP - 7.62 mm or SCATP – Cal. .45.

4.5.5 Chamber pressure. The primer shall be inserted and crimped in cartridge cases. The primed cases shall be assembled into cartridges and then tested in accordance with TECP 700-700, Vol. III; SCATP - 5.56mm, SCATP - 5.56mm (Heavy Bullet), SCATP - 7.62 mm or SCATP – Cal. .45.

4.5.6 Priming composition analysis. The analysis shall be made using standard laboratory practices and procedures.

4.5.8 M82 percussion primer sensitivity test.

4.5.8.1 Non-functioning. One hundred and fifty (150) No. 34 primers for use in M82 percussion primers (Part No. 10522621-18) shall be loaded into M892 primers without container charge assembly (less the black powder charge) and tested in accordance with paragraph 4.3.2 Nonfunctioning of MIL-P-46296C. Any primer assembled that fires shall be cause for rejection of the lot.

4.5.8.2 Functioning. Three hundred (300) No. 34 primers for use in M82 percussion primers (Part No. 10522621-18) shall be loaded into M82 primers without container charge assembly (less the black powder charge) and tested in accordance with 4.3.3.1 of MIL-P-46296C. If five or more primers fail to comply with the specified requirements, the lot shall be rejected. If two but less than five defectives are found, a second sample of six hundred (600) primers shall be tested. If the combined number of defective in both the first and second sample is 5 or more, the lot shall be rejected.

5. PACKAGING

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

6. NOTES

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

6.1 Intended use. Assemblies and components covered by this document are intended for use with small arms ammunition and small arms weapons.

6.2 Acquisition requirements. Acquisition documents should specify the following:

a. Title, number and date of this specification.

b. Requirements for submission of first article sample.

c. Conformance verification.

d. Packaging requirements (see 5.1). Reference Drawing No. 1053577, entitled "Packing and Marking Primers, Small Caliber Ammunition, Cartons, (Plastic Tray), Box, Ammunition, M2A1"; Drawing No. 7553274, entitled "Packing and Marking, Primers,

Cal .50, Cartons, Cans, M20; Boxes; M22"; or Drawing No. 9329664, entitled "Packing and Marking for Box, Wirebound, Packing Ammunition for Primer, Electric, M52A381; Percussion M36A2; and Percussion, 50M". Failure to call out packaging drawings will invalidate the Government final hazard classification and result in failure to ship the materiel.

6.3 Definitions. Action time is the total elapsed time from the application of energy to the primer until the emergence of the bullet from the barrel and passage through the terminal pickup.

6.4 Skewness value. The method for computation of the skewness value is shown in Figure 1.

H = Ht.	Pi = Fraction Misfiring	Ki Variance Factor	Kipi = Variance Factor times Fraction Misfiring	si = Skewness Factor	sipi
		1		1	
		3		7	
		5		19	
		7		37	
		9		61	
		11		91	
		13		127	
		15		169	
		17		217	
		19		271	
		21		331	
		23		397	
		25		469	
		27		547	

Σp_i =	$\Sigma k_i p_i$ =	$\Sigma s_i p_i$ =
$*H_{100\%} + .5$ =	$-(\Sigma p_i)^2$ =	μ_3 =
$\bar{H}$ =	$ó^2$ =	$\propto_3$ =
$*H_{100\%}$ = 1st ht. at which 100% misfire	ó =	

Figure 1. Skewness calculation matrix

$$\mu_3 = \Sigma s_i p_i - 3\Sigma k_i p_i \Sigma pi + 2 (\Sigma p_i)^3$$

$$\alpha_3 = \mu_3 / ó^3 = \text{skewness value}$$

6.5 Hazard notice. The primers described herein and certain of their components are flammable and/or explosive and consequently present hazards in manufacture, handling, storage and shipment. The contractor should recognize these hazards and take appropriate measures to

guard and protect against fire, explosion, adverse environment, corrosive atmosphere, rough handling and electrically induced incidents.

6.6 Submission of alternative conformance provisions. All contractor proposed alternative conformance provisions will be submitted to the Government for evaluation/approval as directed by the contracting activity.

6.7 Submission of contractor inspection equipment designs for approval. Submit copies of designs as required to: Commander, U.S. Army ARDEC, ATTN: RDAR-QEM-D, Picatinny Arsenal, NJ 07806-5000. This address will be specified on the Contract Data Requirements List, DD Form 1423 in the contract.

6.8 Subject term (key word) listing.
Small Caliber
Sensitivity

6.9 Changes from previous issue. Marginal notations 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 1305- 2009-022)

Navy-OS
Air Force -70

Review Activities
Army – MR
Navy – AS, MC, NP
Air Force – 99

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