

MIL-P-46610E(MU)
5 November 1973
SUPERSEDING
MIL-P-46610E (MU)
16 October 1967

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

1. SCOPE

1.1 This specification covers percussion primers used for igniting the propellant charge in small arms ammunition.

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

Class 1 - primers procured, packaged and shipped as end items.

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

STANDARDS

Federal	
FED-STD-102	- Preservation, Packaging and Packing Levels
Military	
MIL-STD-105	- Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-109	- Quality Assurance Terms and Definitions
MIL-STD-129	- Marking for Shipment and Storage

FSC 1305

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DRAWINGS

Armament Command

A5000131	- Primer (Chlorate) for Caliber .30
A5001168	- Primer (Chlorate) for Caliber .45
A5333178	- Primer (Chlorate) for Caliber .50
38595819	- Primer (Styphnates) for Caliber .30 Match
C7645332	- Primer (Styphnate) Caliber .30 and Caliber .30 Blank
36200959	- Primer (Styphnate) for Caliber .30 Carbine
C11751131	- Primer (Styphnate) for Caliber .30 Carbine
310534279	- Primer (Styphnate) for 5.56mm
B8594094	- Primer (Styphnate) for 7.62mm Match
b10522621	- Primer (Styphnate) for 7.62mm, 7.62mm Blank, 7.62mm Grenade and 7.62mm Match and Caliber .30
B10535489	- Primer (Styphnate) for 7.62mm Match, 7.62mm Blank, Caliber .30 and Caliber .30 Match
27645336	- Primer (Styphnate) for Caliber .45
B7645336	- Primer (Styphnate) for Caliber .45 Blank
37645339	- Primer (Styphnate) for Caliber .50
B8595433	- Case, Cartridge, Caliber .30 Match
C6000045	- Case, Cartridge, Caliber .30
C6006156	- Case, Cartridge, Caliber .30 Blank
B6200957	- Case, Cartridge, Carbine, Caliber .30
D10524200	- Case, Cartridge, 5.56mm
C10534927	- Case, Cartridge, 5.56mm Blank
B7553772	- Case, Cartridge, 7.62mm Grenade
C8597284	- Case, Cartridge, 7.62mm Blank
D10521997	- Case, Cartridge, 7.62mm
B8597567	- Case, Cartridge, 7.62mm Match
C6000501	- Case, Cartridge, Caliber .45
C6000501A	- Case, Cartridge, Caliber .45
C10523084	- Case, Cartridge, Caliber .45 Blank
37639487	- Case (Steel), Cartridge, Caliber .45 Blank
C5502646	- Case, Cartridge, Caliber .50
C3596401	- Case, Assembly, Spotter-Tracer, Caliber .50, M48A1
C6137544	- Cartridge, Caliber .30, Ball, M2
C8595432	- Cartridge, Caliber .30, Match, M72
C6006152	- Cartridge, Caliber .30 Blank, M1909
B6200954	- Cartridge, Ball, Carbine, Caliber .30, M1
D10523632	- Cartridge, 5.56mm, Ball, M193
C10542379	- Cartridge, 5.56mm Blank, M200

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2.1 (Cont'd)

DRAWINGS (Cont'd)

Armament Command

C8597555	Cartridge, 7.62mm, NATO, Match, M118
C1052I998	Cartridge, 7.62mm, NATO, Ball, M80
C7553707	Cartridge, 7.62mm, NATO, Grenade, Rifle, M164
C8597283	Cartridge, 7.62mm, NATO, Blank, M482
C6000503	Cartridge, Caliber .45, Ball, M1911
C10523095	Cartridge, Caliber .45, Blank, M9
37635291	Cartridge, Caliber .45, Blank, M9 (Steel Case)
C7553097	Cartridge, Caliber .50, Ball, M33
C8594735	Cartridge, Caliber .50, Spotter-Tracer, M48A1
B10522388	Primer, Composition FA No. 956
F10535777	Packing and Marking for Primers, Small Caliber Ammunition Cartons: (Plastic Tray) Box, Ammunition M2A1 Box Wirebound
97553274	Packing and Marking for Primer (for Caliber .50) in Cartons, in Cans, M20, in Box, M22
IEL-8658516	Inspection Equipment List for Primers Percussion, Small Arms Ammunition

PUBLICATIONS

TECP-700-700, Vol. 111	Manual of Test Methods for Small Arms Ammunition
AMSMU-P 715-501FA1	Ammunition Ballistic Acceptance Test Methods - Test Procedures for 5.56mm Cartridges
AMCR 715-505, vol. 3	Ammunition Ballistic Acceptance Test Methods - Test Procedures for 7.62mm Cartridges
AMCR 715-505, vol. 5	Ammunition Ballistic Acceptance Test Methods - Test Procedures for Cal. .45 Cartridges
ORD-STP-S314	Visual Inspection Standards for Small Arms Ammunition Primer Defects

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

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3. REQUIREMENTS

3.1 General. -All primers shall comply with requirements specified on the applicable drawings, referenced specifications and the following:

3.2 Sensitivity. -The sensitivity shall fall within the limits specified as follows for each type of primer:

<u>Primer</u>	<u>Required Case</u>	<u>Height in Inches</u>	
		<u>H +5S</u>	<u>H -2S</u>
Dwg . No. B10522621	7.62mm Match	15	3
Dwg . No. B10535489	7.62mm Match	16	3
Dwg , No. B10522621	7.62mm	15	3
Dwg . No. B8594094	7.62mm Match	16	3
Dwg. No. B10522621	7.62mm Grenade	15	3
Dwg . No. B10522621	7.62mm Blank	15	3
Dwg . No. B10535489	7.62mm Blank -	16	2½
Dwg . No. B10522621	Caliber .30	15	3
Dwg. No. B10535489	Caliber .30	15	2½
Dug. No. A5000131	Caliber .30	15	2½
Dug. No. B8595819	Caliber .30 Match	15	2½
Dwg , No. B10535489	Caliber .30 Match	15	2½
Dwg. No. C7645332	Caliber .30 Blank	15	2½
Dwg. NOo B8594094	Caliber .30 Blank	15	2½
Dwg. No. B6200959	Caliber .30 Carbine	18	2½
Dwg. No. C11751131	Caliber .30 Carbine	18	2½
Dwg. No. B7645336	Caliber .45	16	2½
Dwg. No, A5001168	Caliber .45	16	2½
Dwg. No. B7645339	Caliber .50	15	2½
Dwg. No. A5033178	Caliber .50	15	2½
Dwg. NO. B7645336	Caliber .45 Blank	18	3
Dwg. No. A5001168	Caliber .45 Blank	18	3

<u>Prime r</u>	<u>Required Case</u>	<u>Height in Inches</u>	
		<u>H +3S</u>	<u>H -3S</u>
Dwg. No. B10534279	5.56mm	12	3
Dwg. No. B10534279	5.56mm Blank	13	2½

3.3 Action time. -The action time (see 6.2) of the cartridge assembled with a primer produced in accordance with Drawings B8594094, AS000131, B10535489, B7645339, B10522621, B8595819, A5033178, or B10534279 shall not exceed 0.0025 seconds except for the Caliber .50 Spotter-Tracer Cartridge which shall not exceed 0.0035.

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3.4 Function and casualty.—The primer when assembled into cartridges in accordance with Drawings C6137544, C8595432, B6200954, D10523632, C8597555, C10521998, C7553707, C8597283, C6000503, C7553097, C8594735, C10542379, C10523085, B7635291 or C6006152 shall function without casualty.

3.5 Velocity.—The average velocity and the standard deviation of the velocities—ridges conditioned at $70^{\circ} \pm 2^{\circ}$ Fahrenheit (F) shall not exceed the requirements for the applicable cartridge as shown below:

<u>Cartridges</u>	<u>Average Velocity Feet Per Second (Ft/sec).</u>	<u>Max Std Dev of Velocities</u>
Cal. .30, Ball, M42	2740 \pm 30 at 78 feet from muzzle	32
Cal. .30, Match, M72	2640 \pm 30 at 78 feet from muzzle	28
Cal. .30, Carbine, Ball, M1	1900 \pm 30 at 53 feet from muzzle	36
5.56mm, Ball, M193	3250 \pm 40 at 15 feet from muzzle	.40
7.62mm, Grenade, M64	160 \pm 5 at 5.6 feet from forward end of grenade	2
7.62 mm, Match, ZM118	2550 \pm 30 at 78 feet from muzzle	28
7.62mm, Ball, M80	2750 \pm 30 at 78 feet from muzzle	32
Cal. .45, Ball, M1911	855 \pm 25 at 25.5 feet from muzzle	27
Cal. .50, Ball, M33	2910 \pm 30 at 78 feet from muzzle	36
Cal. .50, Spotter-Tracer, 1745 \pm 20 at 78 feet from muzzle M48A1		12

3.6 Chamber pressure.—The average chamber pressure for the cartridges, loaded to obtain the average velocities specified in 3.5 and conditioned at $700 \pm 2^{\circ}\text{F}$, shall not exceed the requirement for the applicable cartridges as shown below:

Cal. .30, Match, M72	50,000 psi, max.
Cal. .30, Ball, M2	52,000 psi, max.
Cal. .30, Carbine, Ball, M1	40,000 psi, max.
5.56mm, Ball, M193	52,000 psi, max.
7.62mm, Ball, M80	50,000 psi, max.
7.62mm, Match, XM118	50,000 psi, max.
Cal. .45, Ball, M1911	19,000 psi, max.
Cal. .50, Ball, M33	55,000 psi, max.
Cal. .50, Spotter-Tracer, M48A1	38.000 psi, max.

3.7 Priming composition.—The ingredients used in the chlorate primer and the styphnate primer shall be restricted to those listed below:

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3.7.1 Lead styphnate priming composition ingredients:

Lead Styphnate	Calcium Silicide
Tetracene	Aluminum
Barium Nitrate	Penetaerythrite Tetranitrate (PETN)
Lead Dioxide	Lead Sulfocyanate
Zirconium	Guncotton (Ground Nitrocellulose)
Antimony Sulfide	Gum Solution

3.7.2 Chlorate priming composition ingredients:

Potassium Chlorate	Antimony Sulfide
Lead Thiocyanate	PETN
Trinitrotoluene	Gum Solution

3.7.3 Priming composition for the No. 34 primer.-The priming composition for the No. 34 primer (Drawing 810522621) 'shall comply with the requirements of Drawing 310522388.

3.8 Workmanship.-The requirements for workmanship are as specified on the applicable drawings and the following:

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

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

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection.-unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure supplies and services conform to prescribed requirements.

4.1.1 Quality assurance terms and definitions.-Reference shall be made to MIL-STD-109 for definition of quality assurance terms.

4.2 First article sample.

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4.2.1 Initial production sample.-At the beginning of regular production, a sample shall be submitted in accordance with contract requirements and shall consist of 3000 primers. The sample shall be manufactured using the same materials, equipment, processes and procedures as will be used in regular production. All parts and materials, including packaging and packing, shall be the same as used for regular production and shall be obtained from the same source of supply.

4.2.1.1 Examination and test.-After inspection and provisional acceptance at source, the sample shall be inspected for all requirements of the drawings and specifications at a government laboratory or such other facility specified in the contract.

4.2.1.2 Initial production sample failure.-Failure of the sample to comply with the requirements of the drawings and specifications shall result in sample disapproval. Determination as to acceptability of any initial production sample shall be based upon-results of initial tests only, and no second tests shall be permitted on that initial production sample.

4.3 Inspection provisions.

4.301 Lot.

4.3.1.1 Submission of product.-The product shall be submitted in accordance with MIL-STD-105.

4.3.1.2 Lot identification.-Each lot of primers shall be identified as to type, number, and the cartridge caliber in which they are to be used, as well as with a lot number and the supplier's identification as assigned by the procuring activity. Each lot shall be further identified by a Federal Stock Number assigned by the procuring activity.

4.3.2 Examination.-One hundred percent examination shall be performed for Critical and Major A defects. Examination for Major B and Minor defects shall be performed on a class basis in accordance with the classification of defects, Table I, using applicable sampling plans and acceptance criteria of MIL-STD-105. The acceptable quality level (AQL) for the Major B class shall be 0.065 percent and the AQL for the Minor class shall be 1.50 percent. If any Critical or Major A defects are detected during sampling inspection, the lot shall be rejected. All non-conforming primers shall be rejected.

4.3.2.1 Classification of defects.-The classification of defects shall be as specified in Table I.

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TABLE I

Defect and Method						Major B or
No.	of Inspection	Critical	Major A	Major B	Minor	Minor
Visual 1/						
1	No anvil		X			
2	Double anvil		X			
3	No charge		X			
4	No foil - where applicable			X		
5	Double or multiple foil - where applicable			X		
6	Slipped foil - where applicable					X
7	Inverted or sidewise inserted anvil		X			
8	Crushed or mutilated					X
9	Loose composition					X
10	Deep seated anvil			X		
11	Cocked anvil					X
12	Low anvil			X		
13	High anvil					X
14	Excessive lacquer				X	
15	Loose anvil			X		
16	Stained or corroded metallic components					X
17	Foreign matter			X		
Cup						
18	Bell shaped			X		
19	Bad bevel				X	
20	Brass shavings					X
21	Cracked					X
22	Crooked or eared					X
23	Dents					X
24	Flat on crowned cup					X
25	Crowned on flat cup					X
26	High crown			X		
27	Laminated metal					X
28	Ringed					X
29	Scratched					X
30	Nicked					X
31	V or U					X
32	Low cup				X	

4.3.2.1 (Cont'd)

TABLE I (Cont'd)

No.	Defect and Method of Inspection	Critical	Major A	Major B	Minor	Major B or Minor
Anvil						
33	Burred				X	
34	Chipped					X
35	Filled			X		
36	Partial		X			
37	No vent holes		X			
38	Laminated metal			X		
39	Ringed				X	
40	Unsymmetrical vent holes				X.	
Foil						
41	Partial - where applicable				X	
42	Stained - where applicable		X			
Pellet						
43	Heavy			X		
44	Light	X				
Gaging Primer						
45	Diameter			X		
46	Excess difference between long and short axis diameters, where applicable			X		
47	Height				X	

1/ Refer to ORD-SIP-S314 for visual defect standards for defects 1 through 44. In the event of conflict between Table I of this specification and ORD-SIP-S314 as to defect classification, the classification specified in Table I shall apply.

4.3.3 Tests. - The tests listed in Table II shall be conducted in accordance with the methods and procedures specified in 4.4.

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4.3.3.1 Class 1 Primers shall be subjected to all tests listed in Table II, (see 4.3.3.2 (a) & (b)).

4.3.3.2 Class 2 Primers shall be subjected to the sensitivity and priming composition tests only as listed in Table II.

(a) For the No. 34 Primer (Drawing B10522621) to be used in 7.62mm Ball M80 or Tracer M462 cartridge, the priming composition test shall be conducted on each primer lot or on a reduced testing basis in accordance with 4.4.6.1.

(b) For all other Primers not listed in (a) above and for the No. 34 Primer (Drawing B10522621) to be used in cartridge other than 7.62mm Ball M80 or Tracer M62 the priming composition test shall be conducted only on the first production lot of primers.

4.3.3.3 Test samples.-The quantities for the various tests shall be as specified in Table II. 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 II

<u>Tests</u>		<u>No. of Primers at Ambient Temperature</u>	<u>Require- ment Paragraph</u>
Sensitivity 2/			3.2
Primer Drawing	Case Drawing		
B10524279	C10534927, 5.56mm Blank	600	
B10534279	D10524200, 5.56mm	600	
A5000131	C6000045, Cal. .30	600	
B7645332	C6000045, Cal. .30	600	
B10535489	C6000045, Cal. .30	600	
B10535489	B8595433, Cal. .30 Match	600	
B8595819	B8595433, Cal. .30 Match	600	
C7645332	C6006156, Cal. .30 Blank	600	
B8594094	C6006156, Cal. .30 Blank	600	

4.3.3.3 (Cont'd)

TABLE II (Cont'd)

Tests		No. of Primers at Ambient Temperature	Require- ment Paragraph
Primer Drawing	Case Drawing		
B6200959	B6200957, Cal. .30 Carbine	600	
C11751131	B6200957, Cal. .30 Carbine	600	
B10522621	B7553772, 7.62mm Grenade	600	
B10522621	D10521997, 7.62mm	600	
B10522621	B8597567, 7.62mm Match	600	
B8594094	B8597567, 7.62mm Match	600	
B10535489	B8597567, 7.62mm Match	600	
B10535489	C8597284, 7.62mm Blank	600	
A5001168	C6000501, Cal. .45	600	
B7645336	C6000501, Cal. .45	600	
B7645336	C10523084, Cal. .45 Blank	600	
B7645336	B7639487, Cal. .45 Blank	600	
A5001168	C10523084, Cal. .45 Blank	600	
A5001168	B7639487, Cal. .45 Blank	600	
A5033178	C5502646, Cal. .50	600	
B7645339	C5502646, Cal. .50	600	
B7645339	C8596401, Cal. .50, M48A1	600	
Action Time <u>3/</u> and <u>4/</u>			3.3
B10534279	D10523632, 5.56mm	50	
A5000131	C6137544, Cal. .30	50	
B10535489	C6137544, Cal. .30	50	
B10535489	C8595432, Cal. .30, Match	50	
B8595819	C8595432, Cal. .30, Match	50	
B10522621	C10521998, 7.62mm	50	
B10522621	C8597555, 7.62mm, Match	50	
B8594094	C8597555, 7.62mm, Match	50	
B10535489	C8597555, 7.62mm, Match	50	
A5033178	C5502646, Cal. .50	50	
B7645339	C5502646, Cal. .50	50	
B7645339	C8596401, Cal. .50, Spotter-Tracer	50	

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4.3.3.3 (Cont'd)

TABLE II (Cont'd)

Tests		No. of Primers at Ambient Temperature	Require- ment Paragraph
Function and Casualty <u>4/</u> and <u>5/</u>			3.4
Primer Drawing	Cartridge Drawing		
B10534279	C10542379, 5.56mm Blank	300	
B10534279	D10523632, 5.56mm	300	
A5000131	C6137544, Cal. .30	304	
B7645332	C6137544, Cal. .30	304	
B10535489	C6137544, Cal. .30	304	
B10535489	C8595432, Cal. .30, Match	304	
B8595819	C8595432, Cal. .30, Match	304	
B8594094	C6006152, Cal. .30, Blank	200	
C7645332	C6006152, Cal. .30, Blank	200	
B6200959	B6200954, Cal. .30, Carbine	180	
C11751131	B6200954, Cal. .30, Carbine	180	
B10522621	C10521998, 7.62mm	300	
B10522621	C8597555, 7.62mm, Match	300	
B8594094	C8597555, 7.62mm, Match	300	
B10535489	C8597555, 7.62mm, Match	300	
B10535489	C8597283, 7.62mm, Blank	300	
B10522621	C8597283, 7.62mm, Blank	300	
A5001168	C6000503, Cal. .45	286	
B7645336	C6000503, Cal. .45	286	
B7645336	C10523085, Cal. .45 Blank	154	
B7645336	B7635291, Cal. .45 Blank	154	
A5001168	C10523085, Cal. .45 Blank	154	
A5001168	B7635291, Cal. .45 Blank	154	
A5033178	C7553097, Cal. .50	200	
B7645339	C7553097, Cal. .50	200	
B7645339	C8594735, Cal. .50, M48A1	200	
Velocity <u>1/</u> and <u>4/</u>	Applicable Drawing	20	3.5
Chamber Pressure			
<u>1/</u> and <u>4/</u>	Applicable Drawing		
Priming Composition <u>6/</u>		*	3.7

* Number of primers as are necessary to yield 3 grams of priming composition.

4.3.3.3 (Cont'd)

- 1/ This test shall be performed on the initial production sample only.
- 2/ Failure of the primers to comply with the applicable requirements shall be cause for rejection of the lot subject to 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 applicable requirements shall be cause for rejection of the lot.
- 3/ 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 .020 seconds. If any failing cartridges are found in the second test, the primer lot shall be rejected.
- 4/ All cartridges for these tests shall be loaded with propellant from an acceptable lot with known level of performance
- 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 III. 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 therefor. 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.
- 6/ Failure of the priming composition to comply with the applicable requirements shall be cause for rejection of the initial production sample or the primer lot .

4.3.3.4 Firing defects.-Firing defects and acceptance numbers shall be as specified in Table III.

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TABLE III

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

4.3.4 Packing and marking examination.-(One hundred percent examination shall be performed for all critical defects. Examination for major and minor defects shall be performed on a class basis in accordance with the classification of defects, Table IVa or Table IVb, as applicable, using inspection level of MIL-STD-105. The AQL for the major class shall be 0.65 percent and the AQL for the minor class shall be 2.5 percent.

4.3.4.1 Classification of defects.-The classification of packing and marking defects shall be as specified in Table IVa for drawing F10535777 and Table IVb for drawing D7553274.

TABLE IVa

No.	Defect	Critical	Major	Minor
Carton, before sealing				
1	Improper quantity of primers		X	
2	Improper positioning of primers			X
Carton, after sealing				
3	Label missing or insecurely applied		X	
4	Carton torn or ripped		X	
5	Marking missing, incorrect or illegible		X	
Ammunition box, before closing				
6	Contents, incorrect			X
7	Filler(s) missing or improper			X

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4.3.4.1 (Cont'd)

TABLE IVa (Cont'd)

<u>No.</u>	<u>Defect</u>	<u>Critical</u>	<u>Major</u>	<u>Minor</u>
	Ammunition box, after closing			
8	Severe dents or buckles			X
9	Incorrectly closed and secured box		X	
10	Marking missing, incorrect or illegible			X
	Wirebound box, before closing			
11	Filler or separator missing			X
	Wirebound box, after closing			
12	"Handle Carefully" marking missing, incorrect or illegible	X		
13	Other marking missing, incorrect or illegible			X
14	Unfastened binding wire			X
15	Missing box end		X	
16	Missing or incorrectly attached car seal		X	

TABLE IVb

<u>No.</u>	<u>Defect</u>	<u>Critical</u>	<u>Major</u>	<u>Minor</u>
	Carton, before sealing			
1	Partition(s) in tray filler missing		X	
2	Improper quantity of primers		X	
3	Improper positioning of primers			X
	Carton, after sealing			
4	Label missing or insecurely applied		X	
5	Carton torn or ripped		X	
6	Marking missing, incorrect or illegible		X	
	Can, before sealing			
7	Contents, incorrect			X
8	Filler, separator or removal tape missing or improper			X

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4.3.4.1 (Cont'd)

TABLE IVB (Cont'd)

<u>No.</u>	<u>Defect</u>	<u>Critical</u>	<u>Major</u>	<u>Minor</u>
Can, after sealing				
9	Punctured can		X	
10	Severe dents or buckles			X
11	Tear strip tongue missing or defective		X	
12	Key missing or defective			X
13	Marking missing, incorrect or illegible			X
Box				
14	"Handle Carefully" marking missing, incorrect or illegible	X		
15	Other marking missing, incorrect or illegible			X
16	Reinforcement or wing nut missing			X
17	Rust preventive oil missing			X
18	Nail point protruding on inside of box		X	
19	Separator missing			X

4.3.5 Inspection equipment.—The examination and tests shall be made using equipment listed on the applicable equipment list referenced on IEL-8658516.

4.4 Test methods and procedures.

4.4.1 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 applicable cartridge drawing. The test shall be performed in accordance with the complete run-down method described in TECP 700-700, Vol. III: AMCR 715-505, Volumes 3 and 5; or AMSMU-P-715-501FAI as applicable.

4.4.1.1 Two-height method.—The two-height method of testing for sensitivity may be used in lieu of the complete run-down test when sensitivity results for five consecutive lots have been found to comply with the requirements of 3.2 and computed skewness values have been found to be no greater than .787 nor less than -.787 (see 603). 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 AMSMU-P-715-501FAI Fifty primers shall be tested at each height.

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4.4.1.2 Second sample.-Second sample tests for sensitivity shall be made by testing 100 primers at each height. All second sample tests for sensitivity shall be conducted in accordance with complete run-down method in TECP 700-700, Vol. III: AMCR 715-505, Volumes 3 and 5, or AMSMU-P-715-501FA1 as applicable, regardless of the method used in the first test.

4.4.2 Action time.-The primers shall be inserted and crimped in cartridge 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 AMSMU-P-715-501FA1 using the equipment listed on IEL-8658516.

4.4.2.1 Reduced testing for action time.-Testing for action time may be reduced if five consecutive lots, all using the same primer formulation and production process, have met the requirements of 3.3. 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 or when the requirements specified are not met.

4.4.3 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. The weapon used shall be at room temperature, but not less than 60 degrees F, at the beginning of tests. The tests shall be conducted in accordance with TECP 700-700, Vol. III: AMCR 715-505, Volumes 3 and 5; AMSMU-P-715-501FA1 or MIL-C-60616(MU) and the following as applicable:

<u>Weapon</u>	<u>No. of Cartridges</u>	<u>Intervals between magazines, clips bursts of cartridges</u>
Rifle, 7.62mm M14	Ball, M80 & Blank M82, 100 in magazines rapid fire	30 seconds, max.
	Match, M118, 300 in magazines rapid fire	30 seconds, max.
Gun, Machine 7.62mm, M60	Ball, M80, 200 in links in bursts of 100	None
	Blank, M82, 200 in links in bursts of 50	None
Rifle, U.S., Cal. .30, M1	Ball, M2, 104 in clips rapid fire	30 seconds, max.
	Match, M72, 304 in clips rapid fire	30 seconds, max.

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<u>Weapon</u>	<u>No. of Cartridges</u>	<u>Intervals between magazines, clips bursts of cartridges</u>
Gun, Machine, Cal. .30, M37 or Gun Machine, Cal. .30 M1919A4	Ball, M2, 200 in links, in bursts of 100	Complete cooling
Gun, Machine, Cal. .30 M1919A4	Blank, M1909, 200 in links, in bursts of 100	Complete cooling
Pistol, Automatic Cal. .45, M1911A1	Ball, M1911, 196 in clips rapid fire	Cool after each 49 ctgs
Gun, Sub-Machine, Cal. .45, M3A1	Blank, M9, 154 single shot	Cool after 77 ctgs 30 seconds max.
Rifle, Spotting, Cal. .50, M8C	Ball, M1911, 90 in magazines in bursts of 30	
	Spotter Tracer, M48A1, 100 rapid fire in each of 2 rifles	Cool 30 seconds after each 50 cartridges
Gun, Machine, Cal. .50, M3, ACFT, Basic	Ball, M33, 200 in links, in bursts of 100	Complete cooling
Carbine, Cal. .30,	Ball, M1, 180 in magazines	Cool after each 60 cartridges
Rifle, 5.56mm, M16	Ball, M193 and Blank, M200, 300 in magazines rapid fire	30 seconds, max.

Primers to be used in spotter-tracer cartridges will be tested for function and casualty in the caliber .50 cartridge, Drawing C7553097. When components for the caliber .50 cartridge, Drawing C7553097 are not available, spotter-tracer cartridge, Drawing C8594735, shall be used.

4.4.3.1 Reduced testing. -Function and casualty firing may be reduced in acceptance testing if five consecutive lots, all using the same primer mix and production process, have met the requirements of 3.4. The reduced plan shall consist of testing one out of every five lots submitted. Testing of every lot shall be resumed when the requirements of 3.4 are not complied with or when the primer mix or production process changes.

4.4.4 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; AMCR 715-505, Volumes 3 and 5, or AMSMU-P-715-501FA1 as applicable.

4.4.5 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; AMCR 715-505, Volumes 3 and 5, or AMSMU-P-715-501FA1 as applicable.

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

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4.4.6.1 Reduced testing.--Testing for priming composition may be reduced if five consecutive lots all using the same primer mix and production process, have met the requirements of 3.7. 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 3.7 are not complied with or when the primer mix or production process is changed.

5. PREPARATION FOR DELIVERY

5.1 Levels of packing A and C shall comply with FED-STD-102.

5.1.1 Packing.

5.1.1.1 Level A.--The primers shall be packed in accordance with Drawing F10535777, D7553274 or as required by contract.

5.1.1.2 Level C.--Unless otherwise specified by the procuring agency, the primers shall be packed in standard commercial containers so as to insure acceptance by common or other carrier for safe transportation to the point of delivery. The primers shall be packed and spaced in such a manner that a barrier of suitable material is present between the crown of one primer and the base of another primer in order to resist mass detonation and shield the primers from contact with stray electrical current, flame and shock.

5.1.2 Marking.

5.1.2.1 Level A.--Packing boxes shall be marked and labeled in accordance with the applicable drawings cited in 5.1.

5.1.2.2 Level C.--Packing boxes shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Ordering data.--Invitations for bids and contracts or orders will specify the following:

- a. Title, number and date of this specification.
- b. Caliber and type of ammunition for which primer is intended.
- c. Applicable packing container (see 5.1.1).
- d. The appropriate cartridge cases, bullets, propellant and test equipment when necessary for test purposes shall be supplied by the contracting officer.

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6.2 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.

6.3 Skewness value. -The method for computation of the skewness value is shown on Figure 1.

6.4 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.

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Project NO. 1305-A746

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H = Ht.	p ₁ = Fraction Misfiring	k ₁ = Variance Factor	k ₁ p ₁ = Variance Factor times Fraction Mis- firing	s ₁ = Skewness Factor	s ₁ p ₁
		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	
$\Sigma p_1 =$		$\Sigma k_1 p_1 =$		$\Sigma s_1 p_1 =$	
$*H_{100\%} + .5 =$		$-(\Sigma p_1)^2 =$		$\mu_3 =$	
$\bar{H} =$		$\sigma^2 =$		$\alpha_3 =$	
$*H_{100\%} = 1st\ ht.$		$\sigma =$			
at which 100% misfire					

$$\mu_3 = \Sigma s_1 p_1 - 3 \Sigma k_1 p_1 \Sigma p_1 + 2 (\Sigma p_1)^3$$

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

FIGURE 1. Calculation sheet for primer sensitivity and skewness

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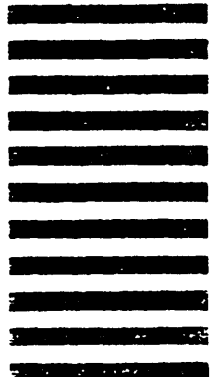
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