

MIL-C-48623(AR)
17 September 1980

MILITARY SPECIFICATION

CARTRIDGE, BLANK

CALIBER .50, M1A1

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

1. SCOPE

1.1 This specification covers Cartridge, Blank, .50 Cal, M1A1 for use in Caliber .50 M2 H.B. Machine Gun with M19 Blank Firing Attachment and Caliber .50 M85 Machine Gun with M20 Blank Firing Attachment.

2. APPLICABLE DOCUMENTS

2.1 Issue of documents. 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.

SPECIFICATIONS

MILITARY

MIL-A-48078 - Ammunition, Standard Quality Assurance Provisions, General Specification For.

FEDERAL

STANDARDS

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-636 - Visual Standards for Small Arms Ammunition Armament Through Caliber .50
MIL-STD-644 - Visual Inspection Standards and Inspection Procedures for Inspection of Packaging, Packing, and Marking for Small Arms Ammunition

FSC: 1305

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 Command, Attn. DRDAR-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.

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2.2 Other publications

DEPARTMENT OF DEFENSE

SCATP - 7.62MM - Ammunition Ballistic Acceptance
Test Methods

DRAWINGS

U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND

C9326760	Cartridge, Cal .50 Blank, M1A1
F7553346	Linked, Box, Ammunition, M2A1; Box Wirebound
C7643674	Classification of Cartridge Case Defects
LI 9326760	Index of Inspection Equipment Lists for Cartridge, Blank, Caliber .50, M1A1

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

3. REQUIREMENTS

3.1 First article inspection. Requirements for the submission of first article samples shall be as specified in the contract. Unless otherwise specified, the first article shall include the pilot pack.

3.2 Material. Materials shall be in accordance with the applicable drawings and specifications.

3.3 Part. The part shall comply with all requirements specified on Dwg. 9326760, all associated drawings, and with all requirements specified in applicable specifications.

3.4 Residual stress. The blank cartridge case shall not split when subjected to a one percent mercurous nitrate solution for 15 minutes.

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3.5 Screen perforation. The blank cartridge, when fired from M2 HB or M85 machine guns, shall not cause perforations of 0.1 inch or greater in diameter in a paper screen placed in the line of fire at a distance of 15 feet from the muzzle of the weapon.

3.6 Muzzle flash. The flash produced at the muzzles of both the M2 HB and the M85 machine guns shall be visible 100 yards from the weapon under conditions of darkness.

3.7 Fouling. The fouling produced by firing 500 blank cartridges shall not cause a change in the cyclic rate by more than 15 percent from the first to the last burst from M2 HB and M85 machine guns.

3.8 Function and casualty. The blank cartridge shall function the M2 HB and M85 machine guns without casualty at 0° to 125° Fahrenheit.

3.9 Cyclic rate. The blank cartridge shall operate the M2 HB and M85 machine guns at an average cycle rate of not less than 450 cartridges per minute, or more than 600 cartridges per minute at 0° to +125°F.

3.10 Noise level. The noise level produced by the blank cartridge shall be neither greater than 10db less than noise level produced by reference ammunition nor more than 164 db's when fired under identical conditions and using the same equipment.

3.11 Waterproof. The blank cartridge shall not release more than one bubble of air when subjected to a pressure of 12.7 psia and held at that pressure for 15 seconds.

3.12 Workmanship. The requirements for workmanship are specified on the applicable drawings, referenced specifications and the following:

3.12.1 Metal defects. The cartridge shall be free of folds, wrinkles, deep draw scratches, scaly metal, dents and other defects.

3.12.2 Foreign matter. The cartridge shall be free of corrosion, stains, discolorations, oil and smears of lacquer.

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.

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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 as designated by the Contracting Officer for evaluation in accordance with the provisions of 4.3.2. The first article sample shall consist of the following items in sample quantities as indicated.

<u>PART DESCRIPTION</u>	<u>DRAWINGS</u>	<u>QUANTITY</u>
Cartridge, Blank Caliber . 50, M1A1	9326760	3010

4.3.2 Inspections to be performed. See MIL-A-48078 and Table I herein.

TABLE 1 FIRST ARTICLE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL- C-48623 (AR)

PARAGRAPH	TITLE	SHEET 1 OF 1			DRAWING NUMBER See Below
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY
	Cartridge (Dwg. 9326760) Examination for defects	20	ACC/REJ 0/1	3.3	PARAGRAPH REFERENCE /INSPECTION METHOD
	Function & Casualty				
	a. Ambient	900	4.3.3.1	3.8	4.5.5
	b. 00F	900	4.3.3.1	3.8	4.5.5
	c. +1250F	900	4.3.3.1	3.8	4.5.5
	Screen Perforation	200	1/2	3.5	4.5.2
	Muzzle Flash	20	0/1	3.6	4.5.3
	Fouling	See Note Below			
	Residual Stress				
	Cyclic Rate	50	0/1	3.7	4.5.4
		See Note Below	0/1	3.4	4.5.1
	Noise Level				
		See Note Below	0/1	3.9	4.5.6
	Waterproof				
		20	0/1 3/4	3.10 3.11	4.5.7 4.5.8
NOTES: 1 - To be performed during function and casualty testing.					

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4.3.3 Rejection. See MIL-A-48078.

4.3.3.1 Function and casualty.

- a. Two or more misfires
- b. Any weapon stoppages
- c. Any blown primer
- d. Any dropped primer
- e. 25 or more primer leaks due to perforation in firing pin indent in primer cups
- f. 8 or more primer leaks due to escape of gas through primer cup other than "e" above
- g. 15 or more primer leaks due to escape of gas around more than 50% of periphery
- h. 28 or more case longitudinal split (I or S)
- i. 8 or more case longitudinal split, body (J)
- j. 2 or more case longitudinal splits body (K)
- k. Any case longitudinal split to head (L)
- l. Any case longitudinal split through head (MU)
- m. 3 or more circumferential rupture: partial, shoulder on body (J, K or S)
- n. Any circumferential rupture: partial, head (L)
- o. Any circumferential rupture: complete

4.4 Quality Conformance Inspection. Inspection lots shall comply with the lot formation provisions of MIL-A-48078. In addition, each inspection lot shall contain:

- a. Primer from one lot and one manufacturer.
- b. Propellant from one lot and one manufacturer.

4.4.2 Examination. See MIL-A-48078.

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

TABLE II QUALITY CONFORMANCE INSPECTION
CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET 1 OF 6		DRAWING NUMBER	
				AQL OR 100%	REQUIREMENT PARAGRAPH	9326760	NEXT HIGHER ASSEMBLY
CATEGORY						PARAGRAPH REFERENCE / INSPECTION METHOD	
<u>CRITICAL</u>	None defined						
<u>MAJOR</u>							
101.	No primer 1/			.40	3.3	Visual	
102.	Cocked primer 1/			.40	3.3	Visual	
103.	Inverted primer 1/			.40	3.3	Visual	
104.	Loose primer 2/			.40	3.3	Visual/Manual	
105.	Dropped primer 3/			.40	3.3	Visual	
106.	Depth of primer, incorrect			.40	3.3	Gage	
107.	Overall length, incorrect			.40	3.3	Gage	
108.	Split case 1/			.40	3.3	Visual	
109.	Perforated case 1/			.40	3.3	Visual	
110.	Diameter extractor groove, incorrect			.40	3.3	Visual	
111.	Diameter head, incorrect			.40	3.3	Gage	
112.	Thickness head, incorrect			.40	3.3	Gage	
113.	Primer crimp, defective 1/			.40	3.3	Gage	
114.	Mouth (rosette) crimp, defective or missing			.40	3.3	Visual	
115.	Length of shoulder, incorrect			.40	3.3	Visual	
116.	Profile & alignment, incorrect 4/			.40	3.3	Gage	
117.	Overall weight, incorrect			.40	3.3	Gage	
118.	Residual stress test 9/			.40	3.3	Gage	
119.	Screen perforation 8/		50		3.3	4.5.1	
120.	Cyclic rate 5/		20		3.5	4.5.2	
121.	Waterproof 10/				3.9	4.5.6	
					3.11	4.5.8	
NOTES:							

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TABLE II QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET 2 OF b		DRAWING NUMBER 9326760 NEXT HIGHER ASSEMBLY	PARAGRAPH REFERENCE /INSPECTION METHOD
				AQL OR 100%	REQUIREMENT PARAGRAPH		
4.4.2.1	Cartridge						
122		Function & casualty <u>1/</u> , <u>6/</u> a. Ambient temp. b. 00F c. +125OF Mouth waterproof lacquer, improper or missing Propellant weight, incorrect	300 300 300		3.8	4.5.5	
123				.40	3.3	Visual	
124				.40	3.3	Gage	
MINOR							
201		Discolored, dirty, oily, smeared <u>1/</u>		.65	3.3	Visual	
202		Corroded or stained, if etched <u>1/</u>		.65	3.3	Visual	
203		Dent <u>1/</u>		.65	3.3	Visual	
204		Draw Scratch <u>1/</u>		.65	3.3	Visual	
205		No chamfer on head <u>1/</u>		.65	3.3	Visual	
206		Fold <u>1/</u>		.65	3.3	Visual	
207		Illegible or missing head stamp <u>1/</u>		.65	3.3	Visual	
208		Defective head <u>1/</u>		.65	3.2	Visual	
209		Nicked or dented primer <u>1/</u>		.65	3.3	Visual	
210		Workmanship <u>1/</u>		.65	3.2	Visual	

NOTES:

TABLE II QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH 4.4.2.1	TITLE Cartridge	SHEET 3 OF 6		DRAWING NUMBER 9326760
CATEGORY	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	NEXT HIGHER ASSEMBLY
	<p>1/ Refer to MIL-STD-636 for visual defects. While no photographs of blank cartridges are included in this Standard, the cartridge case defects and primer defects illustrated in the caliber .50 section can be used. In the event of conflict between paragraphs of this specification and MIL-STD-636 as to defect classification the classification specified by specification shall apply.</p> <p>2/ LOOSE PRIMER - When the fired primer protrudes above the primer pocket or movement of the primer can be observed by applying pressure on the protruding primer by means of a probe, thumbnail or fingertip.</p> <p>3/ DROPPED PRIMER - The condition when the fired primer falls out of the primer pocket.</p> <p>4/ Cartridge profile failure (requiring more than 80 lbs dead weight to insert in profile and alignment gage)</p>			PARAGRAPH REFERENCE / INSPECTION METHOD
NOTES:				

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TABLE II QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-C-48623 (AK)

PARAGRAPH	TITLE	SHEET 4 OF 6		DRAWING NUMBER
4.4.2.1	Cartridge			9326760
CATEGORY	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
	<p>5/ The cyclic rate shall be determined during the firing of the function and casualty test. Failure of any burst to comply with the applicable requirement shall be cause for rejection of the lot subject to the testing of a second sample consisting of double the number of cartridges in the first sample. Failure of any burst in the second sample to comply with the applicable requirement shall be cause for rejection of the lot. The second sample shall be fired in the type weapon in which the failure occurred.</p> <p>6/ An initial production sample or production lot shall be rejected when function and casualty defects plus all other firing defects listed in paragraph 4.4.3.2 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 quantity specified under function and casualty test shall be fired</p>			
NOTES:				

TABLE II QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

TITLE		MIL-C-48623 (AR)	
PARAGRAPH	Cartridge	DRAWING NUMBER	9326760
4.4.2.1		NEXT HIGHER ASSEMBLY	
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	REQUIREMENT PARAGRAPH
	<p>in the service weapon specified therefore. This procedure shall apply regardless of the weapon or weapons in which the firing defects occurred in the first tests. If the total number of defects in the combined first and second sample 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 lot shall be rejected.</p> <p>7/ Cartridges shall be conditioned at the specified temperatures for a minimum of 4 hours after test temperature of item has been reached.</p> <p>8/ Failure of two or more cartridges to comply with the applicable requirement shall be cause for rejection of the lot. If one cartridge fails in the first test, a second sample consisting of double the number of cartridges in the first sample shall be tested. If any failing cartridges are found</p>	AQL OR 100%	PARAGRAPH REFERENCE / INSPECTION METHOD
NOTES:		SHEET 5 OF 6	

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TABLE II QUALITY CONFORMANCE INSPECTION

CLASSIFICATION OF DEFECTS & TESTS

MIL-C-48623 (AR)

PARAGRAPH	TITLE	SHEET 6 OF 6		DRAWING NUMBER 9326760
4.4.2.1	Cartridge			NEXT HIGHER ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH
	<p>in the second sample, the lot shall be rejected.</p> <p>9/ Failure of eight or more cartridges to comply with the applicable requirements shall be cause for rejection of the lot. If more than three, but less than eight cartridges fail in the first test, a second sample consisting of double the number of cartridges in the first sample shall be tested. The lot shall be rejected if, in the combined first and second sample, eight or more cartridges fail to comply with the applicable requirements.</p> <p>10/ Failure of nine or more cartridges to comply with the applicable requirement shall be cause for rejection of the lot. If more than four, but less than nine cartridges fail in the first test, a second sample consisting of double the number of cartridges in the first sample shall be tested. The lot shall be rejected if, in the combined first and second sample, nine or more cartridges fail to comply with the applicable requirements.</p>			PARAGRAPH REFERENCE / INSPECTION METHOD
NOTES:				

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4.4.3 Testing. Testing is described in the First Article and Quality Conformance Inspection Tables.

4.4.3.1 Packaging, packing, and marking. Inspection for packaging, packing, and marking shall be in accordance with MIL-STD-644.

4.4.3.2 Firing defects. Firing defects and acceptance number shall be as specified in Table III.

TABLE III

<u>DEFECT</u>	<u>FIRST SAMPLE</u>	<u>ACCEPTANCE NUMBERS</u>	
		<u>CUMULATIVE</u>	<u>(first & second sample)</u>
1. Misfire	1	2	
2. Weapon Stoppage <u>1/</u>	0	1	
3. Primer			
a. Escape of gas through or around primer cup	0	1	
b. Blown Primer	0	1	
c. Primer falls out of pocket on retraction of bolt (dropped primer)	0	1	
4. Case Casualties:			
a. Longitudinal Split			
1. Neck & Shoulder (I or S)	27	65	
2. Body (J)	7	15	
3. Body (K)	1	2	
4. To head (L)	0	1	
5. Through head (M)	0	1	
b. Circumferential rupture			
1. Partial, shoulder, or body (J, K, or S)	2	4	
2. Partial, head (L)	0	1	
3. Complete	0	1	

1/ All stoppages attributable to the ammunition, with the exception of misfire or complete rupture observed in all tests shall be included.

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4.4.4 Inspection equipment. The inspection equipment required to perform the examination and test prescribed herein is described in the Paragraph Reference/Inspection Method column in the tables starting with Paragraph 4.4.2.1. The contractor shall submit for approval inspection equipment designs in the accordance with the terms of the contract. See Section 6 of MIL-A-48078 and 6.2 herein.

4.4.4.1 Index of inspection equipment list. The examination tests shall be made using equipment listed on LI 9326760.

4.5 Test methods and procedures

4.5.1 Residual stress. (Mercurous Nitrate) The test shall be conducted in accordance with SCATP-7.62MM - Ammunition Ballistic Test Methods.

4.5.2 Screen perforation. The test shall be conducted in accordance with SCATP-7.62MM - Ammunition Ballistic Test Methods.

4.5.3 Muzzle flash. The test shall be conducted in accordance with SCATP-7.62MM - Ammunition Ballistic Test Methods.

4.5.4 Fouling. The test shall be conducted in accordance with SCATP-7.62MM - Ammunition Ballistic Test Methods.

4.5.5 Function and casualty. In these firings, the weapons shall be at room temperature at the beginning of the test, and the machine guns shall be cooled between bursts. The number of cartridges to be fired shall be as specified below. The test shall be conducted in accordance with SCATP-7.62MM - Ammunition Ballistic Test Methods and as indicated below:

- a. Gun, machine, caliber .50, Browning, M2HB (Turret Type) - Fire in bursts of 100 cartridges.
- b. Gun, machine, caliber .50, Browning, M2HB (Flexible Type) - Fire in bursts of 100 cartridges.
- c. Gun, machine, caliber .50, M85 - Fire in bursts of 100 cartridges.

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	<u>AMBIENT</u>	0°F	+125°F
No. of cartridges	300	300	300

NOTE: Cartridges for high & low temperature tests shall be conditioned at the specified temperatures for a minimum of four hours and fired at that temperature.

4.5.6 Cyclic rate. The test shall be conducted in accordance with SCATP-7.62MM - Ammunition Ballistic Test Methods.

4.5.7 Noise level. The test shall be conducted in accordance with SCATP-7.62MM - Ammunition Ballistic Test Methods.

4.5.8 Waterproof. The cartridges (not exceeding five at one time) shall be placed horizontally on a perforated tray. The tray shall be placed in a desiccator containing sufficient quantity of freshly boiled water to maintain a head of 2 to 2 1/2 inches. The desiccator shall be evacuated to a pressure held at that pressure for 15 seconds. The number of bubbles liberated from the mouth or primer of each cartridge shall be observed. Vacuum Lead Tester (Dwg D10534010) shall be used.

4.5.10 Defect penalty. In any ballistic test except function and casualty, in which the occurrence of a firing defect listed in Table II prevents the obtaining of a reliable result for the characteristic being tested, an additional shot shall be fired. That particular test shall be not penalized, but the total ballistic sample shall be penalized for such defects in accordance it Table III.

4.5.11 Defective weapon. If a test weapon fails to comply with the minimum cyclic rate during a normal burst operation or is found to be defective during or at the end of burst, the test shall be suspended. The weapon shall be corrected or replaced and the test be repeated in whole or in part.

4.5.12 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.

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5. PACKAGING

5.1 Packing - Level A. The cartridge shall be packed in accordance with Drawing F7553346.

5.2 Marking and labeling. Packing boxes shall be marked and labeled in accordance with the applicable drawing cited in 5.5.

6. NOTES

6.1 Ordering data. See MIL-A-48078.

6.2 Submission of inspection equipment designs for approval. See MIL-A-48078. Submit equipment designs as required to Commander, ARRADCOM, Dover, NJ 07801, ATTN: DRDAR-QAA-I.

6.3 Drawings. Drawings listed in Section 2 of this specification under the heading U.S. ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND (ARRADCOM) may also include drawings prepared by, and identified as Edgewood Arsenal, Frankford Arsenal, Rock Island Arsenal or Picatinny Arsenal drawings. Technical data originally prepared by these activities is now under the cognizance of ARRADCOM.

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DOCUMENT IDENTIFIER (Number) AND TITLE

MIL-C-48623

CARTRIDGE, BLANK CALIBER .50,

M1A1

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