MIL-C-46482B(MU)
25 February 1972
SUPERSEDING
MIL-C-46482A(MU)
30 October 1962

MILITARY SPECIFICATION
CARTRIDGE, CALIBER .45, BALL, M1911 MATCH GRADE

1. SCOPE

1.1 This specification covers Cartridge, Caliber .45, Ball, M1911 Match Grade intended for competitive match firing in Caliber .45 Weapons.

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 the specification to the extent specified herein.

SPECIFICATIONS

Military
MIL-I-45607 - Inspection Equipment, Acquisition, Maintenance and Disposition Of

STANDARDS

Federal
Federal Test Method Standard No. 151 - Metals; Test Methods

Military
MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes
MIL-STD-109 - Quality Assurance Terms and Definitions
MIL-STD-636 - Visual Inspection Standards and Inspection Procedures for Inspection of Packaging, Packing and Marking of Small Arms Ammunition
MIL-STD-1169 - Lot Numbering of Ammunition

DRAWINGS

U.S. Army Munitions Command
C8596136 - Cartridge, Caliber .45, Ball, M1911, Match Grade
F8596134 - Packing and Marking for Cartridges, Caliber .45, Match Grade, Cartons, Box, Ammunition, M2A1, Box, Wirebound
C7643674 - Classification of Cartridge Case Defects

PUBLICATIONS

Munitions Command
AMCR 715-505, Volume 5 - Ammunition Ballistic Acceptance Test Methods, Volume 5, Test Procedures for Cal. .45 Cartridges

(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 General.-The cartridge shall comply with the requirements specified on Drawing C8596136 and as specified herein.

3.2 Bullet extraction.-The force required to extract the bullet from the cartridge case shall be not less than 40 pounds.

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

3.4 Velocity.-The average velocity of the sample cartridges, conditioned at $70^{\circ} + 2^{\circ}$ Fahrenheit (F), shall be 855 feet per second (ft/sec) plus or minus 25 ft/sec, at 25.5 feet from the muzzle of the weapon. The standard deviation of the velocities shall not exceed 27 ft/sec.

3.5 Chamber pressure.-The average chamber pressure of the sample cartridges, conditioned at $70^{\circ} \pm 2^{\circ}$ F, shall not exceed 19,000 pounds per square inch (psi).

3.6 Accuracy.-The average of the diagonals ($\bar{D}$) of all targets of the sample cartridges fired at 50 yards shall not exceed 3 inches.

3.7 Function and casualty.-The cartridge shall function without casualty.

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

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

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

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.

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 500 cartridges. 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.

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

4.3.1.2 Lot Identification.-Each lot of ammunition shall be identified as to type, caliber and model, as well as with a lot number in accordance with MIL-STD-1168. Each lot shall be further identified by a Federal Stock Number assigned by the procuring activity.

4.3.2 Examination.-One hundred per cent 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 I, using applicable sampling plans and acceptance criteria of Standard MIL-STD-105. The acceptable quality level (AQL) for the major class shall be 0.25 per cent and the AQL for the minor class shall be 1.50 per cent.

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

Table I

No.	Defect and Method of Inspection	Critical	Major	Minor	Major or Minor
	Visual 1/				
	Cartridge				
1	Discolored, dirty, oily, smeared			X	
	Corroded or stained, if etched		X		
	Case				
4	Round head		X		
5	Dent				X
6	Split case				
	in K, L, or M location	X			
	in I, S, or J location		X		
7	Perforated case	X			
8	Draw scratch				X
9	Scratch			X	
10	Beveled underside of head		X		
11	Scaly metal				X
12	No chamfer or head (rim)				X
13	Wrinkle			X	
14	Bulge			X	
15	Illegible or missing head stamp			X	
16	Defective head			X	
17	Defective mouth			X	
	Bullet				
18	Dent			X	
19	Scratch			X	
20	Split bullet jacket		X		
21	Loose Bullet		X		
22	Scaly metal (bullet)				X
23	Upset (crooked) point			X	
25	Flat point			X	
	Primer				
26	No primer		X		
27	Cocked primer		X		
28	Inverted primer		X		

Table I (Cont'd)

No.	Defect and Method of Inspection	Critical	Major	Minor	Major or Minor
	Visual 1/				
29	Loose primer		X		
30	Nicked or dented primer			X	
31	No waterproofing material (primer pocket joint)			X	
	Gaging				
32	Cartridge profile failure (requiring more than 10 lbs dead weight to insert in profile and alignment gage)		X		
33	Diameter of extractor groove			X	
34	Diameter of head			X	
35	Thickness of head, max.			X	
36	Thickness of head, min.		X		
37	Case length		X		
38	Total length		X		
39	Depth of primer		X		
	Weighing				
40	Weight, min.		X		

1/ Refer to Standard MIL-STD-636 for visual standards for defects 1 thru 31. In the event of conflict between Table I of this specification and Standard MIL-STD-636, 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.

4.3.3.1 Test samples.-The quantities for the various tests shall be as specified in Table II. Only cartridges 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 cartridges selected shall be thoroughly mixed before being divided into samples for the various tests.

Table II

Test	Number of Cartridges	Requirement Paragraph
Bullet Extraction 1/	20	3.2
Residual Stress (Mercurous Nitrate) 1/	20	3.3
Velocity 2/ 4/		3.4
Chamber Pressure 2/	20	3.5
Accuracy 2/	90	3.6
Function and Casualty 3/ Pistol, Automatic, Cal. .45, M1911A1 National Match	294	3.7

1/ 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 may be tested. If any failing cartridges are found in the second sample, the lot shall be rejected.

2/ Failure of the cartridges to comply with the applicable requirement shall be cause for rejection of the lot subject to testing of a second sample consisting of double the quantity of cartridges in the first sample. Failure of the cartridges in the second sample to comply with the applicable requirement shall be cause for rejection of the lot.

3/ The lot shall be rejected when function and casualty defects plus firing 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 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.

4/ Velocity and pressure are obtained simultaneously.

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

Table III

Defects	First Sample	Acceptance Number Cumulative (First and second samples)
1. Misfire 5/		
a. No vent hole, or obstruction in the vent area	0	-
b. Other	1	2
2. Bullet remaining in bore 1/	0	-
3. Primer		
a. Perforation in firing pin indent in primer cup	1	2
b. Escape of gas through primer cup other than 3.a	1	2
c. Escape of gas around primer cup 2/	5	11
d. Blown primer	0	1
e. Primer falls out of pocket on retraction of bolt	0	1
f. Primer remains in pocket but is physically loose	1	2
Case casualty		
a. Longitudinal split 3/		
(1) Mouth (I)	9	21
(2) Body (J)	3	6
(3) Body (K)	1	2
(4) To head (L)	0	1
(5) Through head (M)	0	1
b. Circumferential rupture 3/		
(1) Partial (J)	2	5
(2) Partial body (K)	0	1
(3) Partial head (L)	0	1
(4) Complete	0	1
Failure to extract	0	1
Weapon stoppage 4/	0	1

1/ No second sample permitted. Lot shall be rejected.

2/ Gas escapes around more than 50 percent of periphery of cup.

3/ For location of defects indicated by letters in parenthesis, see drawing C7643674.

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

5/ Each cartridge that misfires shall be disassembled and examined for presence of a vent hole in the primer pocket, or any obstruction in the vent hole area of the primer pocket that can be assignable as the cause for misfire. If the vent hole is missing or obstructed, the lot shall be rejected with no second sample permitted.

4.4 Test methods and procedures.

4.4.1 Bullet extraction.-The cartridges shall be tested in an approved bullet extractor machine. The rate of travel of the test head shall be not less than three inches nor more than six inches per minute. The test shall be conducted in accordance with AMCR 715-505, Volume 5.

4.4.2 Residual stress (mercurous nitrate).-Tests shall be conducted in accordance with AMCR 715-505, Volume 5.

4.4.3 Velocity.-The tests shall be conducted in accordance with AMCR 715-505, Volume 5 and shall be conducted simultaneously with the chamber pressure tests.

4.4.4 Chamber pressure.-The tests shall be conducted in accordane with AMCR 715-505, Volume 5.

4.4.5 Accuracy.-The tests shall be conducted in accordance with AMCR 715-505, Volume 5.

4.4.6 Function and Casualty.-The weapons shall be at room temperature at the beginning of the test. Two pistols shall be used, and one half the quantity specified in Table II shall be fired in each pistol. The pistols shall be cooled after the firing of each 49 rounds. The test shall be conducted in accordance with AMCR 715-505, Volume 5.

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

5. PREPARATION FOR DELIVERY

5.1 Packing - Level A.- (Worldwide shipment) - The cartridge shall be packed in accordance with Drawing F8596134.

5.2 Marking and Labeling.-Packing boxes shall be marked and labeled in accordance with drawing cited in 5.1.

6. NOTES

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

6.1.1 Title, number and date of this specification.

6.1.2 Type and level of packing.

6.1.3 Provision for the supply, maintenance and disposition of mandatory ballistic test equipment for acceptance inspection purposes.

6.1.4 Provision for the submission of acceptance inspection reports containing final inspection results for each lot of ammunition presented to the Government.

6.1.5 Requirement for contractor to provide and maintain an inspection system in accordance with MIL-I-45208, Inspection System Requirements.

6.1.6 Head stamp.-Designation "NM" will be applied only to cartridges specifically destined for Camp Perry National Match.

6.2 Hazard notice.-The cartridge described herein and certain of its 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.

Preparing Activity:

Army - MU (FA)
Project No. 1305-A700

Custodian:

Army - MU

SPECIFICATION ANALYSIS SHEET

Form Approved
Budget Bureau No. 22-R255

INSTRUCTIONS: This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.

SPECIFICATION

ORGANIZATION

CITY AND STATE

CONTRACT NUMBER

MATERIAL PROCURED UNDER A

☐ DIRECT GOVERNMENT CONTRACT ☐ SUBCONTRACT

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

A. GIVE PARAGRAPH NUMBER AND WORDING.

B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES

2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID

3. IS THE SPECIFICATION RESTRICTIVE?

[ ] YES [ ] NO *(If "yes", in what way?)*

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

SUBMITTED BY *(Printed or typed name and activity - Optional)*

DATE

DD FORM 1 JAN 64 1426

REPLACES EDITION OF 1 OCT 54 WHICH MAY BE USED.