

MIL-C-3369C(MU)

20 MAY 1966

SUPERSEDING

MIL-C-3369B(MU)

26 NOVEMBER 1963

MILITARY SPECIFICATION**CARTRIDGE, CALIBER .30, CARBINE, BALL, M1****1. SCOPE**

1.1 This specification covers a cartridge for use in the caliber .30 carbine.

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.

MIL-STD-644 — Visual Inspection Standards and Inspection Procedures for Inspection of Packaging, Packing and Marking of Small Arms Ammunition

DRAWINGS**MUNITIONS COMMAND****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 for Small Arms Ammunition through Caliber .50

B6200954 — Cartridge, Caliber .30, Carbine, Ball, M1

* C7553430 — Cartridge, Caliber .30, Carbine, Ball, M1, Steel Case

C7643674 — Classification of Cartridge Case Defects

D7553724 — Packing and Marking, Cartridge, Carbine, Caliber .30 in 10 Round Clips; in Bandoleers; in Box Ammunition, M2A1; in Wirebound Box

D7553902 — Packing and Marking, Cartridge, Carbine, Caliber .30; Cartons; Box,

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Ammunition,
M2A1; Box, Wire-
bound

IEL-6200954 — Inspection Equip-
ment, List for Car-
tridges, Ball, Car-
bine, Caliber .30,
M1

* IEL-7553430 — Inspection Equipment
List for Cartridge,
Ball, Carbine, Cali-
ber .30, M1 (Steel)

PUBLICATIONS**MUNITIONS COMMAND**

* **TECP 700-**
700 Vol III — Manual of Test
Methods for Small
Arms Ammunition

(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 Drawing B6200954 or C7553430 as specified by the contract, referenced specifications and the following:

* **3.2 First article sample.** Requirements for the submission of first article samples by the contractor shall be as specified in the contract.

3.3 Bullet extraction. The force required to extract the bullet from the cartridge case shall be not less than 45 pounds.

* **3.4 Residual stress.** (Brass case cartridges) The cartridge case shall not split when subjected to a one percent mercurous nitrate solution for 15 minutes.

* **3.5 Waterproof.** The cartridge shall not release more than one bubble of air when subjected to a pressure differential of 5 pounds per square inch (psi) for 15 seconds.

3.6 Accuracy. The average of the mean radii of all targets of the sample cartridges, fired at 100 yards, shall not exceed 1.5 inches.

3.7 Velocity. The average velocity of the sample cartridges, conditioned at 68° to 72° Fahrenheit (F), shall be 1900 feet per second (ft/sec) plus or minus 30 ft/sec at 53 feet from the muzzle of the weapon. The standard deviation of the velocities shall not exceed 36 ft/sec.

3.8 Chamber pressure. The average chamber pressure of the sample cartridges, conditioned at 68° to 72° F, shall not exceed 40,000 pounds per square inch (psi).

* **3.9 Salt spray (steel case cartridges).** No steel case shall show any corrosion products after the cartridge has been subjected to a 5 percent salt spray for 5 hours.

3.10 Function and casualty. The cartridge shall function without casualty.

3.11 Stripping. The jacket of the bullet, or any part thereof, shall not separate from the slug when the cartridge is fired.

3.12 Workmanship. The requirements for workmanship are as 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, dirt, oil and smears of lacquer.

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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 specified herein. Except as otherwise specified, the supplier may utilize his own facilities or any commercial laboratory acceptable to 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 to define quality assurance terms used.

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 1500 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 requirements of the drawings and specifications shall result in sample disapproval.

4.3 Inspection provisions.

4.3.1 Lot.

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

4.3.1.2 *Size of lot.* The ammunition lot size shall be as agreed upon between the supplier and the contracting officer, provided the formation of the lot is in accordance with MIL-STD-105.

4.3.1.3 *Lot identification.* Each lot of ammunition shall be identified as to type, caliber and model, 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 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 MIL-STD-105. The AQL for the major class shall be 0.25 percent and the AQL for the minor class shall be 1.50 percent. All non-conforming cartridges shall be rejected.

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	
2	Corroded or stained, if etched		X		

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TABLE I—(Cont'd)

No.	Defect and Method of Inspection	Critical	Major	Minor	Major or Minor
<i>Case</i>					
4	Round head		X		
5	Dent				X
6	Split case in K, L or M location in I or J location	X	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 on head (rim)		X		
13	Fold			X	
14	Wrinkle			X	
15	Bulge			X	
16	Illegible or missing head stamp			X	
17	Defective head			X	
18	Defective mouth			X	
* 18A	Defective protective finish			X	
<i>Bullet</i>					
19	Dent			X	
20	Scratch			X	
21	Split bullet jacket		X		
22	Loose bullet		X		
23	Scaly metal				X
24	Upset (crooked) point			X	
25	Exposed steel clad jacket			X	
26	Flat point			X	
<i>Primer</i>					
27	No primer	X			
28	Cocked primer	X			
29	Inverted primer	X			
30	Loose primer		X		
31	Nicked or dented primer			X	

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TABLE I—(Cont'd)

No.	Defect and Method of Inspection	Critical	Major	Minor	Major or Minor
32	No waterproofing material (primer pocket joint)			X	
Gaging					
33	Total length		X		
34	Cartridge profile failure (requiring more than 20 lbs dead weight to insert in profile and alignment gage)		X		
35	Diameter of extractor groove, max.		X		
36	Diameter of extractor groove, min.			X	
37	Diameter of head		X		
38	Thickness of head		X		
39	Length of case		X		
40	Depth of primer		X		
Weighing					
41	Weight, min. ²		X		

¹ Refer to MIL-STD-686 (Caliber .30, Carbine) for visual defect standards for defects 1 through 32.

² Each lightweight cartridge shall be disassembled and the propellant weighed. Each cartridge found to contain less than 7 grains of propellant shall be classed as a critical defect.

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, dimensional and weight 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 shall be thoroughly mixed before being divided into samples for the various tests.

TABLE II—Cont'd.

Test	Number of Requirement Cartridges Paragraph	
*Waterproof ²	20	3.5
Accuracy ²	90	3.6
Velocity ²	20	3.7
Chamber pressure ²	20	3.8
*Salt spray ² (Steel only)	20	3.9
Function & Casualty ⁴		3.10
*Carbine, Caliber .30, M2	600	
Stripping ²		3.11

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 nine or more cartridges to comply with the applicable requirement shall be cause for rejection of the lot.

TABLE II

Test	Number of Requirement Cartridges Paragraph	
Bullet extraction ¹	25	3.3
Residual stress (Mercurous Nitrate) ¹	50	3.4

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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 requirement.

³ 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 used in the first test. Failure of the cartridges in the second sample to comply with the applicable requirement shall be cause for rejection of the lot.

⁴ The lot shall be rejected when function and casualty defects plus all other firing defects exceed the acceptance number for the cumulative sample in Table III. If the number of defects found in the first tests exceeds the 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 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.

⁵ This test shall be conducted on the initial production sample only. Determination of compliance with the bullet stripping requirement shall be made during the function and casualty test.

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

TABLE III

Defects	Acceptance	
	First Sample	Cumulative (1st & 2nd Sample)
1. Misfire	1	2
2. Bullet remaining in bore ¹	0
3. Primer leak		
a. Perforation in firing pin indent in primer cup	7	14
b. Escape of gas through primer cup other than 3a	3	6
c. Escape of gas around primer cup more than 50% of periphery	15	32
d. Blown primer or primer falls out of pocket on retraction of bolt	0	1

TABLE III—Cont'd.

Defects	Acceptance	
	First Sample	Cumulative (1st & 2nd Sample)
e. Primer remains in pocket, but is physically loose	3	6
4. Case casualties		
a. Longitudinal split ²		
(1) Mouth (I)	15	32
(2) Body (J)	8	16
(3) Body (K)	8	16
(4) To head (L)	0	1
(5) Through head (M)	0	1
b. Circumferential rupture ²		
(1) Partial (J)	3	6
(2) Partial, body (K)	0	1
(3) Partial, head (L)	0	1
(4) Complete	0	1
5. Failure to extract	0	1
6. Weapons stoppage ³	0	1

¹ No second sample permitted. Lot shall be rejected.

² For location of defects indicated by letters in parentheses, see Drawing C7643674.

³ All stoppages attributable to the ammunition with the exception of misfire, complete rupture or failure to extract observed in all tests shall be included.

* 4.3.4 *Packaging, packing and marking inspection.* During or immediately prior to the packaging operation, 100 percent examination of the cartridges shall be performed to ascertain that the cartridge type conforms to the drawing. Occurrence of a high pressure test, dummy, or grenade cartridge shall be classed as a critical defect. Occurrence of any incorrect type other than those listed shall be classed as a major defect. All non-conforming cartridges shall be rejected. Inspection for packaging, packing and marking shall be in accordance with MIL-STD-644 as applicable to the drawing.

* 4.3.5 *Inspection equipment.* The examination and tests shall be made using the equipment listed on IEL-6200954 or IEL-

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7553430 as applicable except as specified in 4.3.

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 nor more than six inches per minute.

4.4.2 *Residual stress (Mercurous Nitrate).* The test shall be conducted in accordance with TECP 700-700 Vol. III.

* 4.4.3 *Waterproof.* The ammunition to be tested, not to exceed five cartridges 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 2½ inches. The desiccator shall be evacuated to a pressure of 5 pounds per square inch (10 inches of mercury) below atmospheric pressure and held at that pressure for 15 seconds. The number of bubbles liberated from the mouth or primer of each cartridge shall be observed.

4.4.4 *Accuracy.* The test shall be conducted in accordance with TECP 700-700 Vol. III.

4.4.5 *Velocity.* The test shall be conducted in accordance with TECP 700-700 Vol. III.

4.4.6 *Chamber pressure.* The test shall be conducted in accordance with TECP 700-700 Vol. III.

* 4.4.7 *Salt spray.* Steel case cartridges shall be subjected to the salt spray test conducted in accordance with Federal Test Method Standard No. 151, in a 5 percent solution, with the cartridges suspended bullet down for 5 hours.

* 4.4.8 *Function and casualty.* The test shall be conducted in accordance with TECP

700-700 Vol. III. Four carbines shall be used. One hundred and fifty rounds shall be fired in each weapon. One-half of the number of cartridges for each weapon shall be fired full automatic action, and one-half fired semi-automatic action. 15 or 30 round magazines may be used.

4.4.9 *Stripping.* The test shall be conducted in accordance with TECP 700-700 Vol. III simultaneously with the function and casualty test of the initial production sample.

4.4.10 *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 total ballistic sample shall be penalized for such defects in accordance with Table III.

5. PREPARATION FOR DELIVERY

5.1 *Packing, Level A.* (Worldwide shipment) The cartridges shall be packed in accordance with Drawing D7553724 or D7553902.

5.2 *Marking and labeling.* Packing boxes shall be marked and labeled in accordance with the applicable drawing cited in 5.1.

6. NOTES

* 6.1 *Ordering data.* Invitations 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

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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.

* The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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