

INCH-POUND

MIL-PRF-32056(AR)
20 December 1999

PERFORMANCE SPECIFICATION

CARTRIDGE, 10 GAUGE SHOTSHELL, BLANK

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

1. SCOPE

1.1 Scope. This specification covers the 10 gauge blank shotshell cartridge for use in artillery with adapters for 10 gauge blanks for saluting and training (see 6.1).

2. APPLICABLE DOCUMENTS

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

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards and handbooks form a part of this specification to the extent specified herein. Unless otherwise specified, the issues are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document, should be addressed to: Commander, U.S. Army TACOM-ARDEC, ATTN: AMSTA-AR-QAD, Picatinny Arsenal, New Jersey 07806-5000 by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 1305

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

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STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-286	Propellants, Solid: Sampling, Examination & Testing
MIL-STD-636	Visual Standards for Small Arms Ammunition through Caliber .50
MIL-STD-1168	Ammunition Lot Numbering
MIL-STD-1916	DOD Preferred Methods for Acceptance of Products

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Standardization Documents Order Desk, 700 Robbins Avenue, Bldg. 4D, Philadelphia, PA 19111-5094.)

2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DOD adopted are those listed in the issue of the DODISS cited in the solicitation. Unless otherwise specified, the issue of documents not listed in the DODISS are the issues of the documents cited in the solicitation (see 6.2).

SPORTING ARMS & AMMUNITION MANUFACTURER'S INSTITUTE

SAAMI	Technical Committee Manual Vol. IV Shotgun
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(Copies of SAAMI manuals are available from Secretary, Sporting Arms & Ammunition Manufacturer's Institute, PO Box 838, Branford, CT 06405.)

AMERICAN NATIONAL STANDARDS INSTITUTE

ANSI/SAAMI Z299.2	Voluntary Industry Performance Standards for Pressure and Velocity of Shotgun Ammunition for the Use of Commercial Manufacturers
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(Copies of ANSI Standards are available from American National Standards Institute, 11 West 42nd Street, 13th Floor, New York, NY 10036)

UN ST/SG/AC.10/11	Recommendations on the Transport of Dangerous Goods, Tests and Criteria
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(Copies of UN ST/SG/AC.10/11 are available from United Nations Publications, New York, NY 10017)

2.4 Order of precedence. In the event of 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.

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3. REQUIREMENTS

3.1 First article. When specified in the contract (see 6.2), a sample shall be subjected to first article inspection in accordance with 4.2.

3.2 Operating requirements.

3.2.1 Primed case sensitivity. The energy imparted by a steel ball weighing 1.94 ± 0.02 ounces falling 12 inches onto a simulated firing pin shall cause initiation of the primer. The energy imparted by a steel ball weighing 1.94 ± 0.02 ounces falling 2 inches onto a simulated firing pin (the simulated firing pin shall have a nominal weight of 70 grains and a spherical end radius of 0.0500 ± 0.0025 inches) shall not cause initiation of the primer.

3.2.2 Function and casualty. The cartridge shall function without casualty when conditioned at ambient, hot and cold temperatures.

3.2.3 Sound pressure level. The maximum peak sound pressure level of the shotshell when fired shall not be greater than 170 decibels with a B-duration of 15 ± 10 milliseconds. The minimum peak sound pressure level of the shotshell when fired shall not be less than 154 decibels with a B-duration of 15 ± 10 milliseconds.

3.2.4 Penetration. No penetration of Kraft paper (25#, 0.003 inch thickness, approximately 4 feet x 4 feet in area) or equivalent, at a distance of 50 ± 1 feet in front of the muzzle of the firearm shall be evident.

3.3 Interface and interoperability requirements.

3.3.1 Cartridge visual and physical parameters. The cartridge dimensions shall be as cited in ANSI/SAAMI Z299.2 for a 10 gauge cartridge with a 2-7/8 inch chamber. In addition, cartridges shall be free from dents, scratches and other imperfections.

3.4 Support and ownership.

3.4.1 Ammunition lot numbering. Each lot of ammunition shall be identified by type and lot number. Lot numbering/identification shall be in accordance with MIL-STD-1168.

3.4.2 Final hazard classification. The cartridge shall comply with the following Hazard Classification when packaged in commercial packaging or in accordance with packaging requirements in the contract.

DOD Hazard Class/Div: 1.4
DOD Hazard Compatibility Group: S
DOT Hazard Class: 1.4S
Net Explosive Weight: 0.028 lbs.

3.4.3 Propellant stability. All propellants shall be stable over a minimum time period of 5 years.

3.4.4 Identification. The side of each cartridge shall be marked to identify it as a blank round.

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4. VERIFICATION.

TABLE I. Requirements / Verification Cross Reference Matrix

METHOD OF VERIFICATION

N/A – Not Applicable

1 – Analysis

2 – Demonstration

3 – Examination

4 – Test

CLASS OF VERIFICATION

A – First article inspection

B – Conformance verification

Section 3 Requirement	Verification Methods				Verification Class		Section 4 Method
	N/A	1	2	3	4	A	
3.1				X	X	X	4.2
3.2.1					X	X	4.4.1
3.2.2					X	X	4.4.2
3.2.3					X	X	4.4.3
3.2.4					X	X	4.4.4
3.3.1 & 3.4.4				X		X	4.4.5 & 4.4.9
3.4.1				X		X	4.4.6
3.4.2					X	X	4.4.7
3.4.3					X	X	4.4.8
3.4.4				X		X	4.4.9

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

- a. First article inspection (see 4.2)
- b. Conformance verification (see 4.3)

4.1.1 Verification conditions. Unless otherwise specified, all inspections shall be performed in accordance with the test conditions specified in section 4.4.

4.2 First article inspection. When specified in the contract, a sample of the cartridge and components shall be subjected to first article verification in accordance with the Requirements/ Verification Cross Reference Matrix, Table I.

4.2.1 First article quantity. First article verification shall be performed on the quantity of cartridges, primed cases and grams of propellant as specified in Table II.

4.2.2 Inspections to be performed. The first article assemblies, components and test specimens may be subjected to any or all of the examinations and tests specified in this specification (see Table II), and be inspected for compliance with any or all requirements of the specification and the applicable drawings.

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

MIL-PRF-32056 (AR)TABLE II – First article inspection

EXAMINATION OR TEST	CONFORMANCE CRITERIA		REQUIREMENT PARAGRAPH	INSPECTION METHOD
	SAMPLE	ACC-REJ <u>1/</u>		
Primed case sensitivity	30	Note 1	3.2.1	4.4.1
Function and casualty (ambient, hot, cold)	100,100,100	Note 2	3.2.2	4.4.2
Sound pressure level	20	Note 3	3.2.3	4.4.3
Penetration	30	Note 4	3.2.4	4.4.4
Examination for defects	See MIL-STD-1916		3.3.1, 3.4.1 & 3.4.4	4.4.5, 4.4.6 & 4.4.9
Thermal stability	150 gm	0 / 1	3.4.2	4.4.7
Propellant stability	50 gm	0 / 1	3.4.3	4.4.8

1/ See notes after Table III.

4.3 Conformance verification.

4.3.1 Inspection lot formation. Lot formation shall be in accordance with the lot formation requirement of MIL-STD-1916, paragraph 4.2.2.

4.3.2 Conformance inspection. The sample cartridges shall be subjected to conformance verification in accordance with Table III.

4.3.3 Examinations and tests. Reference shall be made to MIL-STD-1916 for the definition of Critical, Major, and Minor defects. The attribute sampling plan required for the examination of defects in Table III shall be in accordance with the attribute sampling plan of MIL-STD-1916, using verification Level IV for Major characteristics and Level III for Minor characteristics. One hundred percent inspection shall be used on all Critical characteristics.

4.3.4 Alternative conformance provisions. Unless otherwise specified herein or provided for in the contract, alternative conformance procedures, methods or equipment, such as statistical process control, tool control, or other types of sampling plans, may be used by the contractor when they provide, as a minimum, the level of quality assurance required by the provisions herein.

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TABLE III – Conformance inspection

EXAMINATION OR TEST	CONFORMANCE CRITERIA		REQUIREMENT PARAGRAPH	INSPECTION METHOD
	SAMPLE	ACC-REJ		
Primed case sensitivity	30	Note 1	3.2.1	4.4.1
Function and casualty, ambient	100	Note 2	3.2.2	4.4.2
Penetration	30	Note 4	3.2.4	4.4.4
Examination for defects	SEE MIL-STD-1916		3.3.1, 3.4.1 & 3.4.4	4.4.5, 4.4.6 & 4.4.9

Notes:

1. The criteria for primed case sensitivity acceptance are contained in 3.2.1 & 4.4.1.
2. The criteria for function and casualty of the sample cartridges, tested at hot, cold and ambient temperatures, are contained in Table V, Firing defects.
3. The criterion for sound level acceptance is contained in 3.2.3.
4. The criterion for penetration acceptance is contained in 3.2.4.

TABLE IV. Examination for defects

EXAMINATION	CONFORMANCE CRITERIA		REQUIREMENT PARAGRAPH	INSPECTION METHOD
	SAMPLE	ACC-REJ		
		<u>3/</u>		
Critical:				
1. Mashed head	100%		3.3.1	Visual <u>1/</u>
2. Head split	100%		3.3.1	Visual
Major:				
101. Perforated or split case	Level IV	<u>2/</u>	3.3.1	Visual
102. No primer	Level IV		3.3.1	Visual
103. Cocked primer	Level IV		3.3.1	Visual
104. Inverted primer	Level IV		3.3.1	Visual
105. Primer above flush	Level IV		3.3.1	SME
106. Battery cup defects	Level IV		3.3.1	Visual
107. Open crimp	Level IV		3.3.1	Visual
108. Defective head	Level IV		3.3.1	Visual
109. Sheared case over head	Level IV		3.3.1	Visual
110. Defective body	Level IV		3.3.1	Visual
111. Cartridge length, max	Level IV		3.3.1	SME
112. Rim thickness, max	Level IV		3.3.1	SME
113. Head diameter, max	Level IV		3.3.1	SME
114. Case diameter, max	Level IV		3.3.1	SME
115. Illegible or missing cartridge marking	Level IV		3.4.4	4.4.9
Minor:				
201. Improper lot number	Level III		3.4.1	4.4.6

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Notes:

1/ For all defects that have "Visual" as the inspection method, refer to the shotshell/shotgun section of MIL-STD-636 for Visual Standards of defects.

2/ Levels III and IV refer to those verification levels of Table II attributes sampling plan in MIL-STD-1916.

3/ Accept on 0 and reject on 1.

TABLE V– Firing defects

<u>Firing Defects</u>	<u>Acceptance</u>	<u>Rejection</u>
1. Burst rim	0	1
2. Blown primer or battery cup	0	1
3. Primer blown up	0	1
4. Blown base wad	0	1
5. Head pulled off	0	1
6. Head cut off	0	1
7. Dropped primer or battery cup	0	1
8. Misfire	0	1
9. Body cut off	0	1
10. Head split, through head	1	2
11. Split knurl	1	2
12. Split mouth	1	2
13. Partial cut off	1	2
14. Rupture	1	2
15. Partial split	1	2
16. Head start	1	2
17. Bulged rim	1	2
18. Body split, full length	1	2
19. Powder burns	1	2
20. Primer set back	1	2
21. Battery cup setback	1	2
22. Punctured primer	1	2
23. Pierced primer	1	2
24. Cumulative defects for 10 - 23	3	4

NOTE: For standards to judge the defects refer to MIL-STD-636, shotshell cartridges section.

MIL-PRF-32056 (AR)**4.4 Methods of inspection.**

4.4.1 Primed case sensitivity verification. The primed case sensitivity testing shall be performed as specified in SAAMI Technical Committee Manual Vol. IV Shotshell. Empty primed shotshell cartridges shall be tested for primer sensitivity. Two-thirds of the sample shall be tested at a height of 12 inches and one-third of the sample shall be tested at a height of 2 inches. If one or more cartridge primers fail at either height, the sample fails and a sensitivity rundown test shall be conducted. The sensitivity rundown test shall consist of a 25 cartridge test at each 1 inch increment of height between 0 percent and 100 percent firing. If the average critical height (H) plus four standard deviations (4 sigma) exceeds 14 inches, or if the average critical height minus two standard deviations (2 sigma) is less than 1 inch, the lot of cartridges shall be rejected. The average critical height (H) is defined as the mean height at which 50 percent of the primers being tested will fire.

4.4.2 Function and casualty verification. Function and casualty testing shall be performed on a manual unaltered shotgun. Unpackaged cartridges shall be conditioned at temperatures of 70 ± 10 , -20 ± 5 , and 125 ± 5 degrees Fahrenheit for a minimum of four hours. The weapon shall be fired until the total test sample quantity is reached.

4.4.3 Sound pressure level verification. The sound pressure level shall be tested with a government approved decibel meter microphone set up 1.5 ± 0.5 feet to the right of the shooter's left ear (assuming a right-handed shooter) or 1.5 ± 0.5 feet to the left of the shooter's right ear (assuming a left-handed shooter), with the weapon approximately 4 feet 8 inches above the ground. The test shall be performed outdoors, with no obstacles such as hills or buildings at least 30 feet from the test weapon. The wind shall be 2 miles per hour or less. A 10 gauge shotgun shall be used with an unaltered barrel length (standard barrel length is approximately 32 inches in length). Twenty cartridges shall be fired and the peak sound pressure level along with B-duration limits shall be observed for each firing and be compared to the requirement.

4.4.4 Penetration verification. Penetration testing shall be performed as specified in the SAAMI Technical Committee Manual Vol. IV Shotshell for blank rounds.

4.4.5 Cartridge visual and physical parameters verification. All test cartridges shall be inspected for the defects listed in Table IV. The criteria for grading defects shall be in accordance with MIL-STD-636.

4.4.6 Ammunition lot numbering verification. Visually verify that an ammunition lot number has been assigned to each lot of 10 gauge shotshell cartridges in accordance with MIL-STD-1168.

4.4.7 Final hazard classification verification. Compliance with the FHC requirements specified in paragraph 3.4.2 shall be validated during the First Article Test (FAT). FAT tests for Final Hazard Classification shall be in accordance with UN ST/SG/AC.10/11, Recommendations on the Transportation of Dangerous Goods, Tests and Criteria. The following test series shall be used: 4.a for thermal stability. Test results from prior in-house verifications of these tests are acceptable.

4.4.8 Propellant stability verification. Propellant stability tests shall be conducted in accordance with the test procedures listed below. Stability is demonstrated when results comply with the requirements listed below.

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<u>Test</u>	<u>Reference Document</u>	<u>Test Procedure Description</u>	<u>Requirement</u>
Heat	MIL-STD-286	Method 404.1.2	For single base propellants - Methyl violet paper shall not change to salmon pink in less than 40 minutes, and the sample shall not explode in less than 5 hours at 134.5°C. For double base propellants - Methyl violet paper shall not change to salmon pink in less than 40 minutes, and no fumes given off less than 1 hour at 120°C.
Storage Degradation/ Surveillance	MIL-STD-286	Method 407.1	No fumes in less than 30 days of storage at 65.5°C.

4.4.9 Identification verification. The cartridge shall be marked in accordance with blank cartridge marking in SAAMI Technical Committee Manual Vol. IV Shotshell.

5. PACKAGING.

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DOD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or 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. These cartridges are intended for use in US military weapons (artillery with blank adapters) for saluting and training. The 10 gauge blank cartridges procured to this specification are military unique because they must meet the military's propellant stability and shelf life storage requirements of 5 years, which exceeds commercial industries normal requirements.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and date of this specification.
- b. Issue of DODISS to be cited in the solicitation, and, if required, the specific issue of

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individual documents referenced (see 2.2.1).

- c. Requirements for submission of first article.
- d. Requirement and provisions for submission of test data as required.
- e. Certificate of conformance for each lot of ammunition.
- f. Requirements for ammunition lot numbering.
- g. Packaging requirements (see section 5.1): The following is provided as reference information.

Packaging will be level B for the following round:

CTG 10 GAGE SHOTSHELL, BLANK
NSN 1305-00-028-5035-A010
PN 10524632

The cartridges will be packaged in cartons in accordance with Code of Federal Regulations (CFR) Title 49. The quantity of cartridges will be packed in a (4G) fiberboard box conforming to ASTM D5118, Class WWVR, Grade V3c or W5c, Style RSC, waterproofed and closed in accordance with ASTM D1974. Five hundred rounds is a standard quantity per fiberboard box.

h. If the Final Hazard Classification on record was based on government packaging drawings it may be necessary to include those drawings in the contract to ensure continued legal transportation. Determination should be made by AMSTA-AR-QAW-S.

6.3 Reference drawing. Drawing 10524632 may be used as a reference for a design that has been qualified.

6.4 Ammunition lot numbers. Ammunition lot numbers require ammunition data cards in accordance with MIL-STD-1168.

6.5 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.

6.6 Subject term (keyword) listing.

Saluting
Shotgun
Training

Custodian:
Army-AR

Preparing activity:
Army-AR

(Project 1305-0216)

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STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete blocks 4, 5, 6, and 7, and send to preparing activity.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced documents(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER MIL-PRF-32056 (AR)	2. DOCUMENT DATE (YYYYMMDD) 20 DECEMBER 1999
DOCUMENT TITLE CARTRIDGE, 10 GAUGE SHOTSHELL, BLANK		
4. NATURE OF CHANGE (<i>Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.</i>)		
5. REASON FOR RECOMMENDATION		
6. SUBMITTER		
a. NAME (<i>Last, First, Middle Initial</i>)	b. ORGANIZATION	
c. ADDRESS (<i>Include Zip Code</i>)	d. TELEPHONE (<i>Include Area Code</i>) (1) Commercial (2) DSN (<i>if applicable</i>)	7. DATE SUBMITTED (YYYYMMDD)
8. PREPARING ACTIVITY		
a. NAME U.S. Army TACOM-ARDEC Standardization Team	b. TELEPHONE (<i>Include Area Code</i>) (1) Commercial (2) DSN (973) 724-5822 880-5822	
c. ADDRESS (<i>Include Zip Code</i>) Attn; AMSTA-AR-QAW-E Picatinny Arsenal, NJ 07806-5000	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6221 Telephone (703) 767-6888 DSN 427-6888	

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