

MIL-O-63170 (AR)
 25 June 1982
 SUPERSEDING
 (See 6.5)

MILITARY SPECIFICATION

OBTURATOR M753 8 INCH PROJECTILE

This specification is approved for use by the US 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 Scope. This specification covers requirements, quality assurance provisions and the preparation for delivery criteria for obturators used in M753, 8 Inch Projectiles (see 6.1).

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified (see 6.2), the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

MILITARY

MIL-B-121	Barrier Material, Grease-proof, Waterproof, Flexible
MIL-A-48078	Ammunition, Standard Quality Assurance Provisions, General Specification for

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-QAN-Q, 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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STANDARDS

MILITARY

MIL-STD-1169 Packaging, Packing and Marking
for Shipment of Inert Ammunition Components

2.1.2 Other Government documents, drawings and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

DRAWINGS (see 6.6)

US ARMY ARMAMENT RESEARCH AND DEVELOPMENT COMMAND

9326205 Obturator

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

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 Construction. The obturator shall comply with all requirements specified on drawing (dwg.) 9326205, with all requirements specified herein, and with the requirements of all applicable specifications to the extent specified on the dwg. and herein.

3.2 Material. The contractor shall provide objective evidence (see 6.4) that materials comply with applicable dwgs. and specifications.

3.3 Breaking load. The obturator shall have a minimum breaking load of 400 lbs. and a minimum elongation of ten percent. Testing shall be performed in accordance with 4.5.1.

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3.4 First article. This specification contains technical provisions for first article inspection (see 4.3). Requirements for submission of first article samples shall be as specified in the contract.

3.5 Workmanship. Obturators shall be fabricated in a thoroughly workmanlike manner and there shall be no evidence of porosity, inclusions, ripples, voids, surface imperfections or any other obvious plastic defects. Finished parts shall be clean and free of dirt, grease, dust and any other foreign matter. Cleaning methods shall not be injurious to the parts nor shall the parts be contaminated by the cleaning agents.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection and standard quality assurance provisions. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor 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. Unless otherwise specified herein or in the contract or purchase order, the provisions of MIL-A-48078 shall apply and are hereby made a part of this detail specification.

4.2 Classification of inspection. The inspections specified herein are classified as follows:

1. First Article Inspection (see 4.3)
2. Quality Conformance Inspection (see 4.4)

4.3 First article inspection.

4.3.1 Submission. When the contract requires first article inspection (see 3.4), the contractor shall submit a first article sample as designated by the contracting officer for evaluation in accordance with 4.3.2. The first article sample shall consist of the following items in sample quantities as indicated.

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<u>Part Description</u>	<u>Drawing</u>	<u>Quantity</u>
Obturator	9326205	20

4.3.2 Inspections to be performed. The first article sample submitted in accordance with 4.3.1 shall be subjected to any or all of the requirements of the applicable dwg. and to the tests and inspections specified in the first article inspection table herein. All parts shall have been manufactured using the same production processes, procedures and equipment which will be used in fulfilling the contract and all materials shall be obtained from the same source of supply as will be used in regular production.

FIRST ARTICLE INSPECTION
CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH 4.3.2.1	TITLE Obturator	SHEET 1 OF 1	DRAWING NUMBER 9326205	
			NEXT HIGHER ASSEMBLY M753 Proj.	
CATEGORY	EXAMINATION OR TEST Classification of Defects and Tests	AQL OR 100%	PARAGRAPH REFERENCE / INSPECTION METHOD 4.4.2.1	
		NO. OF SAMPLE UNITS 20		
NOTE:				

DDI-R-QA Form 160 Jul 77 Replaces SARPA-QA Form 2567 Feb 74 Which is Obsolete

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4.3.3 Inspection equipment. The inspections and tests specified in 4.3.2 shall be accomplished with the gages and test equipment specified in 4.4.4.

4.3.4 Rejection. See MIL-A-48078.

4.4 Quality conformance inspection.

4.4.1 Inspection lot formation. Inspection lots shall comply with the lot formation provisions of MIL-A-48078. In addition, an inspection lot of parts shall not exceed one days production and shall be produced from a single lot of approved material (see 3.2).

4.4.2 Examinations. See MIL-A-48078 and the quality conformance inspection tables herein. Unless otherwise specified, sample destructive tests shall be performed in accordance with Table I.

Table I. Sampling size for destructive tests.

LQ = .10 Acceptance No. = 0 Consumers Risk = .10

<u>No req'd to be delivered</u>	<u>Sample size for no failures</u>
11-18	16
19-25	17
26-37	18
38-57	19
58-105	20
106-249	21
250 and over	22

Lot size required = No required to be delivered + Sample size

QUALITY CONFORMANCE INSPECTION
CLASSIFICATION OF DEFECTS & TESTS

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PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.1	Obturator (see note (c))		9326205
CATEGORY	EXAMINATION OR TEST	AGL OR 100%	REQUIREMENT PARAGRAPH
<u>Major:</u>			M753 Proj.
101.	Inside diameter		3.1
102.	Width between smallest inside diameter and largest outside diameter		3.1
103.	Height of step between smallest inside diameter and largest inside diameter		3.1
104.	Width of smallest inside diameter		3.1
105.	Overall width		3.1
106.	Width between smallest inside diameter and smallest outside diameter of beveled surface		3.1
107.	Bevel Angle		3.1
108.	Breaking load and elongation		3.1
109.	Marking (identification dots)	100%	3.3
110.	Poor workmanship	100%	3.1
111.	Material (dwg 9287987)	---	3.5
			3.2

NOTES: (a) See 4.4.3.1, (b) See Table I, (c) Dimensions apply after conditioning at 70 F and 50% R.H. for 24 hrs min. per dwg. 9326205

QUALITY CONFORMANCE INSPECTION

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CLASSIFICATION OF DEFECTS & TESTS

PARAGRAPH	TITLE	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	SHEET		DRAWING NUMBER
				1 OF 1	1	
CATEGORY				AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.2	Packaging					See 5.0 NEXT HIGHER ASSEMBLY
<u>Major:</u>						N.A.
101.		Packaging and packing not in accordance with applicable requirements		---	5.0	Visual
102.		Objective evidence (see 3.2) not available for packaging and packing material parts not clean and free of dirt and other foreign material prior to packaging		---	5.1.1	Visual
103.		Parts not individually packaged		100%	5.1.1	Visual
104.		Stiffening and cushioning of packages inadequate to provide firm package (when required)		100%	5.1.1	Visual
105.		Individual packages not properly heat sealed		100%	5.1.1	Visual/Manual
106.		Intermediate pack improper or not properly sealed		100%	5.1.1	Visual
107.		Exterior pack improper or not properly sealed		100%	5.1.2	Visual/Manual
108.		Marking of individual packages, intermediate packs or exterior packs missing or illegible		100%	5.1.3	Visual
109.		Evidence of poor workmanship		100%	5.1.4	Visual
110.				100%	-----	Visual
NOTES:						

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4.4.3 Testing. Testing is described in the first article and quality conformance inspection tables and herein.

4.4.3.1 Tool manufacturing control. When tool manufacturing control (TMC) is specified, the first ten pieces initially produced from each mold cavity inspected for the applicable classification of defects herein shall constitute initial mold acceptance. Subsequently, the first and last ten pieces from each mold cavity from each days production inspected for the applicable classification of defects herein shall constitute lot acceptance. In addition, any time the mold requires repair an additional ten pieces from each mold cavity shall be inspected for the applicable classification of defects herein before resumption of production. If any sample fails to meet any of the applicable inspection requirements, the lot of production under consideration shall be rejected.

4.4.4 Inspection equipment. The inspection equipment required to perform the examinations and tests prescribed herein is described in the "Paragraph Reference/Inspection Method" column in the tables starting with 4.4.2.1. The contractor shall submit for approval inspection equipment designs in accordance with the terms of the contract (see section 6 of MIL-A-48078 and 6.3 herein).

4.5 Test methods.

4.5.1 Breaking load (see 3.3). The obturator shall be tested for breaking load and elongation using approved test equipment and fixtures. The obturator shall be assembled on the test fixture and stretched at a speed of 2.00 inches per minute until the obturator breaks with the elongation and load recorded. Measurement of elongation shall not commence until both sides of the obturator are stretched parallel by the approved test fixture. If the obturator fails to meet the breaking load and elongation requirements of 3.3, it shall be rejected.

5. PACKAGING

5.1 Packaging and packing. Unless otherwise specified in the contract or order, packaging and packing shall be in accordance with MIL-STD-1169 subject to the following details and conditions.

5.1.1 Packaging. Items shall be single item packaged in fiberboard containers, sealed in waterproof barrier bags and heat sealed in accordance with MIL-STD-1169, Level A. Barrier bags shall be fabricated from

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MIL-B-121 (Type II, Grade A, Class 1) material or an approved equivalent. Fillers, positioners, stiffeners and cushioning adequate to prevent physical damage to the item and to finished surfaces during transit, storage and handling shall be provided as required.

5.1.2 Intermediate packing. Single item packages shall be packed in intermediate packages in accordance with MIL-STD-1169, Level B.

5.1.3 Packing. Intermediate packages shall be packed in accordance with MIL-STD-1169, Level B.

5.1.4 Marking. Unit packages, intermediate packs and exterior containers shall be marked with the following:

- a. Item nomenclature
- b. Part or dwg. no.
- c. Used on M753 Projectile
- d. Manufacturers
- e. Quantity enclosed
- f. Lot no.
- g. Contract or purchase order no.
- h. Date of acceptance

6. NOTES

6.1 Intended use. Obturators covered by this specification are intended for use in motor body bonding assemblies for rocket motors for M753, 8 Inch Projectiles.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number and data of this specification.
- b. First article inspection, when required (see 3.4).

6.2.2 Data requirements. When this specification is used in an acquisition which incorporates a DD1423, Contract Data Requirements List (CDRL) the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved CDRL incorporated into the contract. When the provisions of DAR 7-104.9 (n) (2) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the

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contract or purchase order requirements. Deliverable data required by this specification is cited in the following paragraphs:

<u>Paragraph no.</u>	<u>Data requirements</u>	<u>Applicable DID no.</u>
4.4.4	Inspection equipment approval	DI-R-1714 (Tailored)

(Copies of DID's required by contractors in connection with specific acquisition functions should be obtained from the Naval Publications and Forms Center or as directed by the contracting officer.)

6.3 Equipment design approval. Submit equipment designs, as required, to Commander, U.S. Army Armament Research and Development Command, ATTN: DRDAR-QAN-I, Dover, New Jersey 07801.

6.4 Objective evidence for material. A statement (certification) supported by test data that each lot of material meets the requirements of the applicable dwgs. and specifications.

6.5 Supersession data. This specification includes the requirements of AR-PD-26 dated 9 April 1979 with Amendmend 1 dated 24 April 1981.

6.6 Drawings and specifications. Drawings and specifications listed in Section 2 of this specification under the heading U.S. Army Armament Research and Development Command may also include dwgs. and specifications prepared and identified as Frankford Arsenal, Edgewood Arsenal, Rock Island Arsenal or Picatinny Arsenal dwgs. and specifications. Technical data originally prepared by these activities is now under the cognizance of ARRADCOM.

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