METRIC

MIL-C-70663A (AR)
6 February 1991
SUPERSEDING
MIL-C-70663 (AR)
31 March 1988

MILITARY SPECIFICATION

CARTRIDGE, CALIBER .50 SLAP Ball and Tracer
(Saboted Light Armor Penetrator) - XM903 and XM962

This specification is approved for use by the U.S. Army Armament, Munitions and Chemical 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 preparation for delivery for Cartridge, Caliber .50, SLAP Ball XM903 and Tracer XM962 used with Caliber .50 M2 Browning Machine Guns.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

MILITARY

MIL-P-10831	Paper, Target
MIL-A-46100	Armor Plate, Steel, Wrought, High Hardness
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 U.S. Army ARDEC, ATTN: SMCAR-BAC-S, Picatinny Arsenal, New Jersey 07806-5000 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 1305

STANDARDS

MILITARY

MIL-STD-109	Quality Assurance Terms and Definitions
MIL-STD-636	Visual Inspection Standards for Small Arms Ammunition through Caliber .50
MIL-STD-644	Visual Inspection Standards and Inspection of Packaging, Packing and Marking of Small Arms Ammunition
MIL-STD-1167	Ammunition Data Cards
MIL-STD-1168	Ammunition Lot Numbering

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

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues shall be those in effect on the date of the solicitation.

DRAWINGS (see 6.6)

US ARMY ARMAMENT RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

9370055	Cartridge, Caliber .50, SLAP Ball, XM903
12902956	Cartridge, Caliber .50, SLAP Tracer, XM962
5502646	Case, Cartridge, Cal.50 (SLAP & SLAPT)
9370056	Penetrator, Cartridge, Cal.50 SLAP
9370057	Sabot Assy, Cartridge, Cal.50 SLAP
9370058	Projectile Assy, Ctg, Cal.50 SLAP
12624621	Area Multiplier, Ctg, Cal.50 SLAP
12902950	Penetrator, Cartridge, Cal.50 SLAPT
12902947	Sabot Assembly, Ctg, Cal.50 SLAPT
12902946	Projectile Assy, Ctg, Cal.50 SLAPT
12576456	Packing and Marking,Cartridges, Caliber .50, Bulk, Box, Ammunition, M2A1; Box Wirebound
12576457	Packing and Marking,Cartridges, Caliber .50, Linked, Box, Ammunition, M2A1; Box Wirebound
7643674	Classification of Cartridge Case Defects

INSPECTION EQUIPMENT DRAWINGS

IL9370055	Inspection Equipment List for Cartridge, Caliber .50, SLAP Ball, XM903
IL12902956	Inspection Equipment List for Cartridge, Caliber .50, SLAP Tracer, XM962
8649496	SLAP, Accuracy Test Barrel
8649497	SLAP, Velocity & Action Time Test Barrel
8649498	SLAP, Chamber Test Barrel (made from 8649497)

PUBLICATIONS

US ARMY ARMAMENT RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER

SCATP-7.62mm	SMALL CALIBER AMMUNITION TEST PROCEDURES
TECP 700-700, Vol. III	Manual of Test Methods for Small Arms Ammunition

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

2.2 Nongovernment publications. The following document(s) 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 issues of documents not listed in the DODISS are the issues of the documents cited in the solicitation.

AMERICAN SOCIETY FOR TESTING AND MATERIALS

ASTM D 1238	Standard Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103-1137.)

2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document shall take precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 First article inspection. Requirements for submission of the first article inspection shall be as specified in the contract.

3.2 Materials construction and design. The cartridges shall conform to the materials, construction and design requirements specified herein, on assembly drawings, 9370055 and 12902956, all associated drawings, and with all requirements specified in the applicable specifications and standards.

3.3 Cartridge weight. The cartridge shall not weigh less than 95 grams (1466 grains).

3.4 Bullet extraction. The force required to separate the bullet from the cartridge case shall not be less than 1335 Newtons (300 pounds force).

3.5 Melt flow rate. The melt flow rate determined from reground sabots shall not differ from the melt flow rate of the virgin molding material by more than 2.0 grams per ten minutes.

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

3.7 Airtightness of base closure seal. The tracer penetrator assembly shall not release more than one bubble of air when subjected to an internal pressure differential of .0014 Pa (2 PSIG) for five seconds.

3.8 Dispersion. The average of the mean radii of all targets of the sample cartridges fired at 550 meters (600 yards) shall not exceed 460 mm (18 inches). Testing may be conducted at 183 meters (200 yards). When tested at 183 meters (200 yards) the average of the mean radii of all targets of the sample cartridges fired shall not exceed 145 mm (5.6 inches).

3.8.1 Match. The average of the centers of impact of XM962 SLAP tracer cartridges shall be within plus or minus .50 mils vertically of XM903 SLAP cartridges at a range of 1370 meters (1500 yards).

3.9 Penetration. The XM903 penetrator shall perforate 19 mm (3/4") thick MIL-A-46100 High Hardness Armor (HHA) (500 BHN nominal) at 0 degrees obliquity located 1370 meters (1500 yards) from the muzzle of the weapon. The penetrator shall perforate 19 mm (3/4") thick MIL-A-46100 HHA at 57 degrees obliquity located 250 meters (275 yards) from the muzzle of the weapon.

3.10 Chamber pressure. The average chamber pressure obtained with cartridges conditioned at 20 C (68 F) and fired shall not exceed 380 MPa (55,000 PSIG).

3.10.1 Chamber pressure at high temperature. The average chamber pressure obtained with cartridges conditioned at 65 C (150 F) from four to five hours and fired shall not vary by more than + 52 MPa (7,500 PSIG) or - 104 MPa (15,000 PSIG) from the average chamber pressure obtained with cartridges conditioned at 20 C (68 F).

3.10.2 Chamber pressure at low temperature. The average chamber pressure obtained with cartridges conditioned at - 46 C (- 50 F) for not less than six hours and fired shall not vary by more than + 52 MPa (7,500 PSIG) or - 104 MPa (15,000 PSIG) from the average chamber pressure obtained with cartridges conditioned at 20 C (68 F).

3.11 Velocity. The minimum average velocity of XM903 SLAP cartridges conditioned at 20 C (68 F) and fired shall be 1,215 meters per second (3,985 feet per second), at 23.8 meters (78 feet) from the muzzle of the weapon. The standard deviation of the velocities obtained shall not exceed 15.2 meters per second (50 feet per second). No individual velocity reading shall be less than 1066 meters per second (3,500 feet per second).

3.11.1 Velocity at high temperature. The average velocity obtained with cartridges conditioned at 65 C (150 F) from four to five hours and fired shall not vary by more than $\pm$ 45 meters per second (150 feet per second).

3.11.2 Velocity at low temperature. The average velocity obtained with cartridges conditioned at - 46 C (- 50 F) for not less than six hours and fired shall not vary by more than $\pm$ 45 meters per second (150 feet per second).

3.12 Waterproof. Cartridges after having been placed under a 25mm (1 inch) head of water for 24 hours, shall not when subsequently fired obtain an average velocity reading in excess of plus or minus 30 meters per second (100 FPS) from the average velocity results obtained during the velocity test performed for the same lot. In addition all cartridges shall fire, with all bullets clearing the muzzle of the barrel.

3.13 Yaw. The SLAP penetrator yaw shall not exceed 15 degrees when fired at a target located 30 $\pm$ 3 meters (100 $\pm$ 10 feet) from the muzzle of the weapon.

3.14 Stripping. The sabot shall have stripped from the penetrator at a maximum distance of 45 meters (50 yards) from the muzzle of the weapon.

3.15 Action time. The action time of fired cartridges shall not exceed four milliseconds.

3.16 Function and casualty. The cartridges shall fire without casualty in the Caliber .50 M2 Browning Machine Gun, Heavy Barrel, Flexible and Caliber .50 M2 Browning Machine Gun, Heavy Barrel, Turret, (M48 and M48 Series).

3.16.1 Function and casualty at high temperature. The cartridges shall function without casualty when conditioned at 65 C (150 F) from four to five hours and fired.

3.16.2 Function and casualty at low temperature. The cartridges shall function without casualty when conditioned at - 46 C (- 50 F) for not less than six hours and fired.

3.17 Trace. When viewed from a line parallel to the plane of trajectory, with the line of sight perpendicular to the plane of trajectory at each point of observation, 85% of the XM962 SLAPT Tracers shall exhibit a visible trace from a point not greater than 275 meters (300 yards) from the muzzle of the weapon to a point not less than 1370 meters (1500 yards) from the muzzle of the weapon.

3.18 Workmanship. The metal parts of the cartridge shall be free of cracks, splits, perforations, burrs, and foreign matter. The cleaning method used shall not be injurious to any part nor shall the parts be contaminated by any cleaning agent. All parts and assemblies shall be fabricated, loaded, and assembled in a thorough and workmanlike manner. In addition, the cartridge shall comply with the standards specified in the Caliber. 50 section of MIL-STD-636. Extreme care should be exercised to avoid contamination of primers or propellant by oil, grease, or other foreign matter.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. 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.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5 of this specification and all applicable drawings. The inspections set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling in quality conformance does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to acceptance of defective material.

4.1.2 Quality assurance terms and definitions. Refer to MIL-STD-109 for definitions of quality assurance terms used.

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

a. First article inspection (see 4.3).
b. Quality conformance inspection (see 4.4).

4.3 First article inspection.

4.3.1 First article submission. Unless otherwise specified in the contract, the contractor shall submit a first article sample consisting of the following items for inspection in accordance with 4.3.2:

Part Description	Drawing	Quantity
Cartridge, Cal.50 SLAP	9370055	1660
Case, Cartridge, Cal.50 (SLAP & SLAPT)	5502646	5/tool
Penetrator, Cartridge, Cal.50 SLAP	9370056	5/tool
Sabot Assy, Cartridge, Cal.50 SLAP	9370057	5/cavity
Projectile Assy, Ctg, Cal.50 SLAP	9370058	5/tool
Area Multiplier, Ctg, Cal.50 SLAP	12624621	5/tool
Cartridge, Cal.50 SLAPT Tracer	12902956	1660
Penetrator, Cartridge, Cal.50 SLAPT	12902950	5/tool
Sabot Assembly, Ctg, Cal.50 SLAPT	12902947	5/cavity
Projectile Assy, Ctg, Cal.50 SLAPT	12902946	5/tool

4.3.2 Inspection to be performed. See MIL-A-48078 and Table II herein.

4.3.3 Rejection. See MIL-A-48078 and Table I and II herein.

4.3.3.1 Function and casualty. The sample shall be rejected if the sum of defects from function and casualty testing plus defects observed in all other firing tests exceeds the acceptance numbers specified in Table I.

Table I. First Article Function and Casualty Accept - Reject Criteria.

NONCONFORMANCE	ACCEPTANCE NUMBER	REJECTION NUMBER
1. Misfire	0	1
2. Sabot/Penetrator separation in bore 1/	0	1
3. Sabot/Penetrator remaining in bore	0	1
4. Primer defects:		
a. Perforation in firing pin indent in primer cup	15	16
b. Escape of gas through primer cup other than 4.a.	4	5
c. Escape of gas around primer cup more than 50% of periphery	9	10
d. Blown primer	0	1
5. Case casualties 2/		
a. Longitudinal split		
(1) Neck or shoulder (I or S)	8	9
(2) Body (J)	4	5
(3) Body (K)	0	1
(4) To head (L)	0	1
(5) Through head (M)	0	1
b. Circumferential rupture		
(1) Partial, shoulder, or body (J,K, or S)	0	1
(2) Partial head (L)	0	1
(3) Complete	0	1
6. Failure to extract	0	1
7. Weapon stoppage 3/	0	1

1/ Excessive muzzle flash, loud report, drop in velocity, or any combination of the three may be an indication of sabot/penetrator separation in the bore. Final determination of a sabot/penetrator failure will be damage to the bore of the weapon.

2/ For location of defects indicated by letter in parentheses see drawing 7643674.

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

TABLE II. First article inspection

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET 1 OF 4	DRAWING NUMBER
	Cartridge, Caliber .50 SLAP		9370055/12902956
			NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Case, (Dwg. 5502646) Examination for defects	5 1/ Acc-0 Rej-1	3.2 3.18	SMTE 2/
	Penetrator, (Dwg. 9370056) Examination for defect	5 1/ Acc-0 Rej-1	3.2 3.18	4.4.2.1
	Sabot Assembly, (Dwg. 9370057) Examination for defects	5 3/ Acc-0 Rej-1	3.2 3.18	4.4.2.2
	Projectile Assy, (Dwg. 9370058) Examination for defects	5 Acc-0 Rej-1	3.2 3.18	4.4.2.3
	Ctg, Cal .50 SLAP, (Dwg. 9370055) Examination for defects	1660 Acc-0 Rej-1	3.2 3.18	4.4.2.4
	Area Multiplier, (Dwg. 12624621) Examination for defects	5 1/ Acc-0 Rej-1	3.2 3.18	SMTE 2/

NOTES:
1/ Number of samples per tool.
2/ To be inspected for all mandatory drawing requirements using standard measuring and test equipment (SMTE) with the exception of workmanship which is to be inspected visually.
3/ Number of samples per cavity.

TABLE II. First article inspection

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
	Cartridge, Caliber .50 SLAP	2 OF 4	9370055/12902956
			NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Penetrator, (Dwg. 12902950) Examination for defects	5 1/ Acc-0 Rej-1	3.2 3.18	4.4.2.5
	Sabot Assembly, (Dwg. 12902947) Examination for defects	5 3/ Acc-0 Rej-1	3.2 3.18	4.4.2.6
	Projectile Assy, (Dwg. 12920946) Examination for defects	5 Acc-0 Rej-1	3.2 3.18	4.4.2.7
	Ctg, Cal .50 SLAPT, (Dwg. 12902956) Examination for defects	1660 Acc-0 Rej-1	3.2 3.18	4.4.2.8

NOTES:

TABLE II. First article inspection

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 3 OF 4	DRAWING NUMBER
	Cartridge, Caliber .50 SLAP & Cartridge, Caliber .50 SLAPT		9370055/12902956
			NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Cartridge Weight	100% Acc-0 Rej-1	3.3	4.5.1
	Bullet extraction	50 Acc-1 Rej-2	3.4	4.5.2
	Melt Flow Rate	5 Acc-0 Rej-1	3.5	4.5.3
	Residual Stress	50 Acc-0 Rej-1	3.6	4.5.4
	Airtightness of Base Closure Seal	50 Acc-0 Rej-1	3.7	4.5.5
	Dispersion	150 1/	3.8	4.5.6
	Match	75 2/ 1/	3.8.1	4.5.7
	Penetration	40 3/	3.9	4.5.8
	Chamber Press at Ambient Temp	40 1/	3.10	4.5.9
	Chamber Press at High Temperature	40 1/	3.10.1	4.5.9
	Chamber Press at Low Temperature	40 1/	3.10.2	4.5.9
	Velocity at Ambient Temp	40 1/	3.11	4.5.10
	Velocity at High Temperature	40 1/	3.11.1	4.5.10
	Velocity at Low Temperature	40 1/	3.11.2	4.5.10
	Waterproof	50 1/	3.12	4.5.11

NOTES: 1/ Failure of the cartridges to comply with the applicable requirement shall result in rejection of the first article sample.
2/ 75 SLAP + SLAPT (Tracer)
3/ In both test the failure of a total of 11 or more cartridge to perforate the plate shall result in the rejection of the first article sample. Perforation shall be defined as the complete passage of the penetrator through the armor plate leaving a hole.

TABLE II. First article inspection

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET 4 OF 4	DRAWING NUMBER
	Cartridge, Caliber .50 SLAP & Cartridge, Caliber .50 SLAPT		9370055/12902956
			NEXT HIGHER ASSEMBLY

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Yaw at Ambient Temp	40 4/ 1/	3.13	4.5.12
	Stripping	40 4/	3.14	4.5.13
	Action Time	80 Acc-1 Rej-2	3.15	4.5.14
	Caliber .50 M2 Browning Machine Gun Heavy Barrel Flexible			
	Function and Casualty at Ambient	200 TABLE I	3.16	4.5.15
	Function and Casualty at High Temp	100	3.16.1	4.5.15
	Function and Casualty at Low Temp	100	3.16.2	4.5.15
	Caliber .50 M2 Browning Machine Gun Heavy Barrel Turret Type (M48 and M48 Series)			
	Function and Casualty at Ambient	200 TABLE I	3.16	4.5.15
	Function and Casualty at High Temp	100	3.16.1	4.5.15
	Function and Casualty at Low Temp	100	3.16.2	4.5.15
	Trace	100 5/	3.17	4.5.16

NOTES: 4/ This test may be performed concurrently with the velocity tests.
5/ The lot shall rejected if more than 15 shots fail to comply with the trace requirement

4.4 Quality conformance inspection.

4.4.1 Inspection lot formation. IAW MIL-A-48078.

4.4.1.1 Component parts. Unless otherwise specified, component parts shall be homogeneous and of a size convenient to the contractor and inspected, tested, and accepted by the contractor. The cartridge lot shall contain:

a. Cartridge cases from one manufacturer.
b. Penetrators from one unchanged process and one manufacturer.
c. Primers from one unchanged process and one manufacturer.
d. Propellant from no more than two lot numbers and from one manufacturer.
e. Sabots from one unchanged process and one manufacturer.

4.4.1.2 Lot identification. Each lot of ammunition shall be identified as to type, caliber and model, lot number IAW MIL-STD-1168, and the supplier's identification as assigned by the procuring activity.

4.4.2 Examination for defects.

a. Classification of characteristics. Quality conformance examinations and tests are specified in the following Classification of Characteristics paragraphs. The contractor's quality program or detailed inspection system shall provide assurance of compliance of all characteristics with the applicable drawing and specification requirements utilizing as a minimum the conformance criteria specified herein. Attributes sampling using the inspection levels cited in the Classification of Characteristics paragraphs.

0-1 ATTRIBUTES PLANS

Table III below contains a selection of 0-1 plans, crossindexing Inspection Levels and Lot Size.

TABLE III 0-1 ATTRIBUTES PLANS SAMPLE SIZE

	INSPECTION LEVELS					
	I	II	III	IV	V	VI
LOT SIZE	SAMPLE SIZE					
2 TO 8	*	*	*	*	5	3
9 TO 15	*	*	*	13	5	3
16 TO 25	*	*	*	13	5	3
26 TO 50	*	*	32	13	5	3
51 TO 90	*	*	32	13	12	4
91 TO 150	*	125	32	13	12	5
151 TO 280	*	125	32	20	14	6
281 TO 500	*	125	48	30	17	7
501 TO 1200	*	125	74	35	20	9
1201 TO 3200	1250	125	74	43	24	10
3201 TO 10000	1250	192	87	50	30	10
10001 TO 35000	1250	296	109	61	36	10
35001 TO 150000	1250	296	124	74	40	10
150001 TO 500000	1250	346	156	91	40	10
500001 AND OVER	1250	431	187	102	40	10

Numbers listed under the six inspection levels indicate sample size.
Asterisks (*) indicate that 100% inspection shall be performed.
If the sample size exceeds the lot size, perform 100% inspection.
Accept with zero defects only and reject with one or more defects for all inspection levels.

b. Alternative inspection provisions. Alternative inspection procedures, methods, or equipment such as statistical process control, tool control, or other types of sampling procedures may be used by the contractor when they provide, as a minimum, the level of quality assurance required by the provisions specified herein. Prior to applying such alternative procedures, methods, or equipment the contractor shall describe them in a written proposal submitted to the procuring contracting officer for evaluation and approval by the Government (see 6.8). When required, the contractor shall demonstrate that the effectiveness of the proposed alternative(s) is equal to or better than the specified quality assurance provisions herein. In cases of dispute as to whether the contractor's proposed alternative(s) provide equal assurance, the provisions of this specification shall apply. All approved alternative inspection provisions shall be specifically incorporated into the contractor's quality program or detailed inspection system, as applicable.

c. Whenever possible, utilize nonoperator dependent test equipment. Accepted item should be marked accordingly. Where specified herein attributes sampling inspection (ASI) shall be conducted IAW Table III. Samples should be selected at random.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.1	Penetrator, SLAP		9370056
			NEXT HIGHER ASSEMBLY 9370055

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
CRITICAL	None Defined			
MAJOR				
101.	Outside Diameter	Level II	3.2	Gage
102.	Blunt Point	Level II	3.2	Visual
103.	Upset (Crooked) Point	Level II	3.2	Visual
MINOR				
201.	Dent	Level III	3.2	Visual
202.	Scratch	Level III	3.2	Visual
203.	Workmanship	Level III	3.18	Visual

NOTES:

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.2	Sabot Assembly, SLAP		9370057
			NEXT HIGHER ASSEMBLY 9370055

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
MAJOR				
101.	Missing Area Multiplier	100%	3.2	Visual
102.	Displaced Area Multiplier	100%	3.2	Visual 1/
103.	Sink Under Area Multiplier	Level VI	3.2	Visual 2/
104.	Melt Flow Rate 3/	Level VI	3.5	4.5.3
105.	Crack or Split	Level II	3.2	Visual
106.	Missing Cannelure	Level II	3.2	Visual
MINOR				
201.	Workmanship	Level III	3.18	Visual

NOTES: 1/ Reject sabot assemblies with any plastic over (covering) the penetrator side of the area multiplier. 2/ Crossection sabot assemblies along the longitudinal centerline and examine for stated defect. When a crossectioned sabot (s) with a sink in excess of .5mm (.020 inches) is found the lot or that portion of the lot represented by the sabot assembly sample shall be rejected. 3/ At the end of each four hours of production, sabots from each mold cavity shall be selected to perform the melt flow rate test. Failure to meet the requirements of paragraph 3.5 shall result in the rejection of the sabot assemblies manufactured on mold cavity(ies) that produced the sabot assemblies that failed the melt flow rate test that four hour period.

AMSMC Form 1570a, 1 Jul 89 Replaces AMSMC Form 1570a, 1 Apr 85, which may not be used.

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.3	Projectile Assembly, SLAP		9370058
			NEXT HIGHER ASSEMBLY 9370055

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
MAJOR				
101.	Outside Diameter	Level II	3.2	Gage
102.	Overall Length	Level II	3.2	Gage
103.	Crack or Split in the Sabot	Level II	3.2	Visual
MINOR				
201.	Workmanship	Level III	3.18	Visual

NOTES:

AMSMC Form 1570a, 1 Jul 89

Replaces AMSMC Form 1570a, 1 Apr 85, which may not be used.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 1 OF 3	DRAWING NUMBER
4.4.2.4	Cartridge, Caliber .50 SLAP		9370055
			NEXT HIGHER ASSEMBLY N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	1/			2/
CRITICAL				
1.	Case Split in K, L, or M Location (6)	100%	3.2	Visual
2.	Case Split in I, S, or J Location (6) When Loss of Powder Occurs	100%	3.2	Visual
3.	Perforated case (7)	100%	3.2	Visual
4.	Primer Missing (32)	100%	3.2	Visual
5.	Primer Inverted (34)	100%	3.2	Visual
6.	Weight Under Minimum 3/	100%	3.3	Balance
MAJOR				
101.	Primer Cocked (33)	100%	3.2	Visual
102.	Case Split in I, S, or J Location (6) with no Loss of Powder	Level II	3.2	Visual
103.	Corroded or Stained Cartridge, if Etched (2)	Level II	3.2	Visual
104.	Round Head (Case) (4)	Level II	3.2	Visual
105.	Dented Case (5)	Level II	3.2	Visual
106.	Draw Scratch (8)	Level II	3.2	Visual
107.	Beveled Underside of Head Case (10)	Level II	3.2	Visual
108.	Scaly Metal (Case) (12)	Level II	3.2	Visual
109.	No Chamfer on Head (RIM) (Case) (13)	Level II	3.2	Visual
110.	No Visible Evidence of Mouth Anneal (Case) (21)	Level II	3.2	Visual

NOTES: 1/ Numbers after defect descriptions refer to visual defect standards in MIL-STD-636 (Caliber .50 Section)

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 2 OF 3	DRAWING NUMBER
4.4.2.4	Cartridge, Caliber .50 SLAP		9370055
			NEXT HIGHER ASSEMBLY: N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
MAJOR				
111.	Missing, Loose, or Inverted Penetrator	Level II	3.2	Visual/Manual
112.	Loose Primer (35)	Level II	3.2	Visual/Manual
113.	Total Length	Level II	3.2	Gage
114.	Cartridge Profile Failure Requiring More Than 80 Lbs Dead Weight to Insert in the Profile and Alignment Gage	Level II	3.2	Gage
115.	Diameter of Extractor Groove, Maximum	Level II	3.2	Gage
116.	Diameter of Head	Level II	3.2	Gage
117.	Thickness of Head	Level II	3.2	Gage
118.	Length to Shoulder Datum	Level II	3.2	Gage
119.	Depth of Primer	Level II	3.2	Gage
120.	Cracked or Damage Sabot	Level II	3.2	Visual

NOTES: 2/ Refer to MIL-STD-636 (Caliber .50 section) for visual defect standards. In the event of a conflict between 4.4.2.4 of this document and MIL-STD-636 the text of 4.4.2.4 shall take precedence.
3/ Each lightweight cartridge shall be disassembled and the propellant weighed. Any cartridge containing less than 8 grams (125 gains) of propellant shall be classed as a critical defect. Any cartridge containing more than 8 grams (125 grains) of propellant shall be classed as a major defect.

QUALITY CONFORMACE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET 3 OF 3	DRAWING NUMBER
4.4.2.4	Cartridge, Caliber .50 SLAP		9370055
			NEXT HIGHER ASSEMBLY N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
MINOR				
201.	Discolored, Dirty, oily, or Smeared (Waterproofing) (1)	Level III	3.2	Visual
202.	Dented Case (5)	Level III	3.2	Visual
203.	Draw Scratch (Case) (8)	Level III	3.2	Visual
204.	Scratch (Case) (9)	Level III	3.2	Visual
205.	Scaly Metal (Case) (12)	Level III	3.2	Visual
206.	Fold, Wrinkle, Buckle, or Bulge (case) (14, 15, 16, 17)	Level III	3.2	Visual
207.	Head Stamp Missing or Illegible (Case) (18)	Level III	3.2	Visual
208.	Defective Head (Case) (19)	Level III	3.2	Visual
209.	Defective Mouth (Case) (20)	Level III	3.2	Visual
210.	Nicked or Dented primer (36)	Level III	3.2	Visual
211.	No Waterproofing material at the primer pocket joint (37)	Level III	3.2	Visual
212.	Defective Crimp (38)	Level III	3.2	Visual
213.	Diameter of the extractor groove, minimum	Level III	3.2	Gage
214.	Workmanship 4/	Level III	3.18	Visual

NOTES:

4/ Defects other than those listed in MIL-STD-636 (Caliber .50 section).

AMSMC Form 1570b, 1 Jul 89

Replaces 1570, 1 Feb 85, which may not be used.

QUALITY CONFORMACE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.4.2.5	Penetrator, SLAPT	1 OF 1	12902950
			NEXT HIGHER ASSEMBLY 12902956

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
CRITICAL	None Defined			
MAJOR				
101.	Outside Diameter	Level II	3.2	Gage
102.	Blunt Point	Level II	3.2	Visual
103.	Upset (Crooked) Point	Level II	3.2	Visual
104.	Trace Cavity Diameter	Level II	3.2	Gage
105.	Trace Cavity Depth	Level II	3.2	Gage
106.	Trace Cavity Finish	Level II	3.2	Visual
MINOR				
101.	Dent	Level III	3.2	Visual
102.	Scratch	Level III	3.2	Visual
103.	Workmanship	Level III	3.18	Visual

NOTES:

AMSMC Form 1570a, 1 Jul 89

Replaces AMSMC Form 1570a, 1 Apr 85, which may not be used.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET	DRAWING NUMBER
4.4.2.6	Sabot Assembly, SLAPT	1 OF 1	12902947
			NEXT HIGHER ASSEMBLY 12902956

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
MAJOR				
101.	Missing Area Multiplier	100%	3.2	Visual
102.	Displaced Area Multiplier	100%	3.2	Visual 1/
103.	Sink Under Area Mulltiplier	Level VI	3.2	Visual 2/
104.	Mult Flow Rate 3/	Level VI	3.5	4.5.3
105.	Crack or Split	Level II	3.2	Visual
106.	Missing Cannelure	Level II	3.2	Visual
MINOR				
101.	Workmanship	Level III	3.18	Visual

NOTES: 1/ Reject sabot assemblies with any plastic over (covering) the penerator side of the area multiplier. 2/ Crossection sabot assemblies along the longitudinal centerline and examine for stated defect. When a crossectioned sabot(s) with a sink in excess of .5mm (.20 inches) is found the lot or that portion of the lot represented by the sabot assembly sample shall be rejected. 3/ At the end of each four hours of production, sabots from each mold cavity shall be selected to perform the melt flow rate test. Failure to meet the requirements of paragraph 3.5 shall result in the rejection of the sabot assemblies manufactured on the mold cavity(ies) that produced the sabot assemblies that failed the melt flow rate test that four hour period.

QUALITY CONFORMACE INSPECTION

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET 1 OF 1	DRAWING NUMBER
4.4.2.7	Projectile Assembly, SLAPT		12902946
			NEXT HIGHER ASSEMBLY 12902956

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
CRITICAL	None Defined			
MAJOR				
101.	Outside Diameter	Level II	3.2	Gage
102.	Overall Length	Level II	3.2	Gage
103.	Crack or Split	Level II	3.2	Visual
MINOR				
201.	Workmanship	Level III	3.18	Visual

NOTES:

AMSMC Form 1570a, 1 Jul 89

Replaces AMSMC Form 1570a, 1 Apr 85, which may not be used.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 1 OF 3	DRAWING NUMBER
4.4.2.8	Cartridge, Caliber .50 SLAPT		12902956
			NEXT HIGHER ASSEMBLY N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	1/			2/
CRITICAL				
1.	Case Split in K, L, or M Location (6)	100%	3.2	Visual
2.	Case Split in I, S, or J Location (6) When Loss of Powder Occurs	100%	3.2	Visual
3.	Perforated Case (7)	100%	3.2	Visual
4.	Primer Missing (32)	100%	3.2	Visual
5.	Primer Inverted (34)	100%	3.2	Visual
6.	Weight Under Minimum 3/	100%	3.2	Balance
MAJOR				
101.	Primer Cocked (33)	100%	3.2	Visual
102.	Case Split in I, S, or J Location (6) with no Loss of Powder	100%	3.2	Visual
103.	Corroded or Stained Cartridge, if Etched (2)	Level II	3.2	Visual
104.	Round Head (Case) (4)	Level II	3.2	Visual
105.	Dented Case (5)	Level II	3.2	Visual
106.	Draw Scratch (8)	Level II	3.2	Visual
107.	Beveled Underside of Head Case (10)	Level II	3.2	Visual
108.	Scaly Metal (Case) (12)	Level II	3.2	Visual

NOTES: 1/ Numbers after defect descriptions refer to visual defect Standards in MIL-STD-636 (Caliber .50 section).

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 2 OF 3	DRAWING NUMBER
4.4.2.8	Cartridge, Caliber .50 SLAPT		12902956
			NEXT HIGHER ASSEMBLY N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
MAJOR				
109.	No Chamber on Head Case (13)	Level II	3.2	Visual
110.	No Visible Evidence of Mouth Anneal (Case) (21)	Level II	3.2	Visual
111.	Missing Loose or Inverted Penetrator	Level II	3.2	Visual/ Manual
112.	Loose Primer (35)	Level II	3.2	Visual/ Manual
113.	Total Length	Level II	3.2	Gage
114.	Cartridge Profile Failure requiring More than 80 Lbs Dead Weight to Insert in the Profile and Alignment Gage	Level II	3.2	Gage
115.	Diameter of Extractor Groove, Maximum	Level II	3.2	Gage
116.	Diameter of Head	Level II	3.2	Gage
117.	Thickness of Head	Level II	3.2	Gage
118.	Length to Shoulder Datum	Level II	3.2	Gage
119.	Depth of Primer	Level II	3.2	Gage
120.	Cracked or Damaged Sabot	Level II	3.2	Visual

NOTES: 2/ Refer to MIL-STD-636 (Caliber .50 section) for visual defect Standards. In the Event of a conflict between 4.4.2.8 of this document and MIL-STD-636 the text of 4.4.2.4 shall take precedence.

CLASSIFICATION OF CHARACTERISTICS

MIL-C-70663A(AR)

PARAGRAPH	TITLE	SHEET 3 OF 3	DRAWING NUMBER
4.4.2.8	Cartridge, Caliber .50 SLAPT		12902956
			NEXT HIGHER ASSEMBLY: N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
MINOR				
201.	Discolored, Dirty, Oily or Smeared (Waterproofing) (1)	Level III	3.2	Visual
202.	Dented Case (5)	Level III	3.2	Visual
203.	Draw Scratch (Case) (8)	Level III	3.2	Visual
204.	Scratch (Case) (9)	Level III	3.2	Visual
205.	Scaly Metal (Case) (12)	Level III	3.2	Visual
206.	Fold, Wrinkle, Buckle, or Bulge (Case) (14, 15, 16, 17)	Level III	3.2	Visual
207.	Head Stamp Missing or Illegible (Case) (18)	Level III	3.2	Visual
208.	Defective Head (Case) (19)	Level III	3.2	Visual
209.	Defective Mouth (Case) (20)	Level III	3.2	Visual
210.	Nicked or Dented Primer (36)	Level III	3.2	Visual
211.	No Waterproofing Material at the Primer Pocket Joint (37)	Level III	3.2	Visual
212.	Defective Crimp (38)	Level III	3.2	Visual
213.	Diameter of the Extractor Groove, Minimum	Level III	3.2	Gage
214.	Workmanship 4/	Level III	3.18	Visual

NOTES: 3/ Each lightweight cartridge shall be disassembled and the propellant weighed. Any cartridge containing less than 8 grams (125 grains) of propellant shall be classed as a critical defect. Any cartridge containing more than 8 grams (125 grains) of propellant shall be classed as a major defect.
4/ Defects other than those listed in MIL-STD-636 (caliber .50 section).

4.4.3 Testing. Testing is described in 4.4.3.1. Testing shall be conducted IAW the methods and procedures specified in 4.5.

a. Test samples. The quantities for the various tests shall be as specified in 4.4.3.1. 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. Sufficient cartridges shall be selected so that all testing (including testing of second samples where necessary) can be performed. The cartridges shall be thoroughly mixed before being divided into samples for the various tests.

b. Firing defects and associated acceptance-rejection criteria are specified in Table IV. All defects are classified as major.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 1 OF 2	DRAWING NUMBER
4.4.3.1	Cartridge, Caliber .50 SLAP & Cartridge, Caliber .50 SLAPT		12902956/9370055
			NEXT HIGHER ASSEMBLY: N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
101.	Bullet Extraction	25 1/	3.4	4.5.2
102.	Residual Stress	50 1/	3.6	4.5.4
103.	Airtightness of Base Closure Seal	25 2/	3.7	4.5.5
104.	Dispersion	90 3/	3.8	4.5.6
105.	Match	30 4/ 3/	3.8.1	4.5.7
106.	Penetration	20 5/	3.9	4.5.8
107.	Chamber Press at Ambient Temp	20 3/	3.10	4.5.9
108.	Chamber Press at High Temperature	20 3/	3.10.1	4.5.9
109.	Chamber Press at Low Temperature	20 3/	3.10.2	4.5.9
110.	Velocity at Ambient Temp	20 3/	3.11	4.5.10
111.	Velocity at High Temperature	20 3/	3.11.1	4.5.10
112.	Velocity at Low Temperature	20 3/	3.11.2	4.5.10
113.	Waterproof	20 3/	3.12	4.5.11
114.	Yaw at Ambient Temp	20 6/ 1/	3.13	4.5.12
115.	Stripping	40 1/	3.14	4.5.13
116.	Action Time	50 1/	3.15	4.5.14

NOTES:

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 used in the first sample shall be tested. If any additional cartridges fail in the second test the lot shall be rejected.

4.4.3.1

Notes:

2/ The penetrators removed from the projectiles obtained in the bullet extraction test shall be used for the first test. Failure of seven or more cartridges to comply with the applicable requirement shall result in rejection of lot. If more than three but less than seven penetrators fail the first test, a second sample consisting of double the number of penetrators used in the first sample shall be tested. The lot shall be rejected if a total of seven or more penetrators fail in the first sample and second sample tests combined.

3/ Failure of the cartridges to comply with the applicable requirement shall result in 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 result in rejection of the lot.

4/ 30 SLAP + 30 SLAPT (Tracer). This test may be performed concurrently with the dispersion tests.

5/ Fire either the 1370 m portion of the test or the 250 m portion of the test. Failure of 11 or more cartridges in either test to perforate the armor shall be cause for rejection of the lot pending a retest of double the initial test quantity. If on retest more than 50% of the test cartridges fail to perforate the armor, the lot shall be rejected. Perforation shall be defined as the complete passage of the penetrator through the armor plate leaving a hole.

6/ This test may be performed concurrently with the velocity tests.

CLASSIFICATION OF CHARACTERISTICS

PARAGRAPH	TITLE	SHEET 2 OF 2	DRAWING NUMBER
4.4.3.1	Cartridge, Caliber .50 SLAP & Cartridge, Caliber .50 SLAPT		12902956/9370055
			NEXT HIGHER ASSEMBLY N/A

CLASSIFICATION	EXAMINATION OR TEST	CONFORMANCE CRITERIA	REQUIREMENT PARAGRAPH	INSPECTION METHOD REFERENCE
	Caliber .50 M2 Browning Machine Gun Heavy Barrel Flexible			
117.	Function and Casualty at Ambient	200 7/	3.16	4.5.15
118.	Function and Casualty at High Temp	100 7/	3.16.1	4.5.15
119.	Function and Casualty at Low Temp	100 7/	3.16.2	4.5.15
	Caliber .50 M2 Browning Machine Gun Heavy Barrel Turret Type (M48 and M48 Series)			
120.	Function and Casualty at Ambient	200 7/	3.16	4.5.15
121.	Function and Casualty at High Temp	100 7/	3.16.1	4.5.15
122.	Function and Casualty at Low Temp	100 7/	3.16.2	4.5.15
123.	Trace	100 8/	3.17	4.5.16

NOTES:

4.4.3.1

Notes:

7/ 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 IV. If the number of nonconformances 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 for the function and casualty test, shall be fired in all service weapons specified. 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 exceed 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 those defects exceed the acceptance number for the cumulative sample, the lot shall be rejected.

8/ Failure of 46 or more cartridges to comply with the trace requirement shall be cause for rejection of the lot. If more than 15 but less than 46 cartridges fail during the first test, a second sample consisting of double the number of cartridges tested in the first test shall be fired. The lot shall be rejected if in firing the combined first and second sample a total of 46 or more cartridges fail the trace requirement.

Table IV. QUALITY CONFORMANCE INSPECTION FUNCTION AND CASUALTY FIRING DEFECT CLASSIFICATION AND ACCEPT - REJECT CRITERIA

DEFECT CLASS	ACCEPTANCE NUMBERS FIRST SAMPLE	ACCEPTANCE NUMBERS CUMULATIVE SAMPLE	DEFECT CLASSIFICATION
1. Sabot/Penetrator remaining in bore	0	1/	CRITICAL
2. Misfire Vent hole missing or blocked	0	1/	MAJOR
3. Sabot/Penetrator separation in bore 2/	0	1	MAJOR
4. Misfire (excluding 2 above)	1	2	MAJOR
5. Primer defects:			
a. Perforation in firing pin indent in primer cup	16	42	MINOR
b. Escape of gas through primer cup other than 4.a.	5	11	MAJOR
c. Escape of gas around primer cup more than 50% of periphery	10	21	MAJOR
d. Blown primer 3/	0	1	MAJOR
6. Case casualties 4/			
a. Longitudinal split			
(1) Neck or shoulder (I or S)	9	23	MINOR
(2) Body (J)	5	11	MAJOR
(3) Body (K)	0	1	MAJOR
(4) To head (L)	0	1	MAJOR
(5) Through head (M)	0	1	MAJOR
b. Circumferential rupture			
(1) Partial, shoulder, or body (J,K, or S)	1	2	MAJOR
(2) Partial head (L)	0	1	MAJOR
(3) Complete	0	1	MAJOR
7. Failure to extract	0	1	MAJOR
8. Weapon stoppage 5/	0	1	MAJOR

Table IV. QUALITY CONFORMANCE INSPECTION FUNCTION AND CASUALTY FIRING DEFECT CLASSIFICATION AND ACCEPT - REJECT CRITERIA

1/ No second sample is permitted. The lot shall be rejected.

2/ Excessive muzzle flash, loud report, drop in velocity, or any combination of the three may be an indication of sabot/penetrator separation in the bore. Final determination of a sabot/penetrator failure will be damage to the bore of the weapon.

3/ Primer defects:

a. Blown primer. A primer which, when the cartridge is fired, is completely separated from the head of the cartridge case. Both the head of the case and the primer pocket are grossly distorted and deformed. The severity of this condition is such that it is easily seen.

b. Dropped primer. A primer which falls from the primer pocket after the cartridge is fired.

4/ For location of defects indicated by letter in parentheses see drawing 7643674.

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

4.4.4 Packaging, packing, and marking inspection. During or immediately prior to the packaging operation, 100% examination of the cartridges shall be performed to ascertain that the cartridge type conforms to the drawing. Discovery of a high pressure test round, dummy cartridge, or blank cartridge shall be classed as a critical defect. Discovery of any incorrect type of caliber .50 ammunition other than those listed in the previous sentence shall be classed as a major defect. All nonconforming cartridges shall be rejected. All packing and marking shall be IAW MIL-STD-644 as applies to the drawing.

4.4.5 Inspection equipment. The inspection equipment required to perform the examination and test prescribed herein is described in the Inspection Method Reference column in the First Article examination tables and Quality Conformance Inspection Classification of Characteristics paragraphs, herein. The contractor shall submit inspection equipment designs for approval by the Government IAW the terms of the contract. See section 6 of MIL-A-48078 and 6.3 herein.

4.4.6 Inspection equipment lists. The examination and tests shall be made using equipment listed on IL-9370055 and IL-12902956 except as specified in 4.5.

4.5 Methods of inspection.

4.5.1 Cartridge Weight. Weigh each cartridge using an approved method and approved equipment design.

4.5.2 Bullet extraction. The cartridge shall be tested in an approved bullet extraction machine. The rate of travel of the test head shall be from 75 mm per minute to 150 mm per minute (3 to 6 inches per minute).

4.5.3 Melt flow rate. Samples of sabots selected at random from the production lot shall be broken to remove the area multiplier and then ground to a grain size approximating the size of virgin molding material. The test sample along with a reference sample of the molding material shall be dried to the specified premolding moisture level and subjected to a melt flow rate determination IAW ASTM D 1238, test condition 343C/6.7 Kg (14.8 pounds mass).

4.5.4 Residual stress. The test shall be conducted IAW SCATP 7.62.

4.5.5 Airtightness of base closure seal. The bullets shall be placed base up under 38 mm (1.5 inches) of freshly boiled water in a vacuum desiccator or vacuum jar. The vacuum desiccator or vacuum jar shall be evacuated to a pressure of 100 mm of mercury (4 inches of mercury) below atmospheric pressure for at least five seconds. The number of bubbles released from each bullet shall be observed and recorded.

4.5.6 Dispersion. The cartridges shall be tested in the accuracy rifle using the SLAP accuracy test barrel, 8649496, (45" long) secured to an accuracy mount. The test shall be conducted IAW TECP 700-700, Vol. III, Section 7-14 except 15 round targets shall be fired.

4.5.7 Match. For the match test, the cartridges shall be tested in the accuracy rifle using the SLAP accuracy test barrel, 8649496, (45" long) secured to an accuracy mount. Once properly aimed at the target the rifle shall not be moved during the test. The target holder shall be designed to permit the use of registration marks to permit the removal of the target holder between the firing of the SLAP and the SLAPT cartridges to mark the SLAP bullet holes. Fire 15 SLAP test cartridges IAW TECP 700-700, Vol. III, Section 7-14. Mark the SLAP holes. Without moving the accuracy rifle fire 15 SLAPT test cartridges IAW TECP 700-700, Vol. III, Section 7-14. Repeat the SLAP/SLAPT firing sequence until the required number of test SLAP and SLAPT targets have been fired. Measure and record the vertical distance between the mean points of impact of the SLAP and SLAPT bullet holes on each target.

4.5.8 Penetration. The penetration test shall be performed at a temperature of 20C ± 14C (68F ± 25F), and a barometric pressure of 101.3 KPa ± 7 KPa (30 ± 2 inches of mercury), IAW TECP 700-700, Vol. III, Section 7-17. The distance to the vertical target shall be 1370 meters (1500 yards) and 250 meters (275 yards) to the MIL-A-46100 High Hardness Armor (HHA) (500 BHN nominal) at 57 degrees obliquity (57 degrees from the vertical). The cartridges shall be fired in the accuracy rifle using the SLAP accuracy test barrel, 8649496, (45" long) secured to an accuracy mount. A sufficient number of rounds shall be fired at the 1370 meter target until 20 hits are recorded on the armor plate. A sufficient number of rounds shall be fired at the 250 meter 57 degree obliquity target until 20 hits are recorded on the armor plate. Record complete perforations, complete penetrations, and other results of the firing using the definitions and pictures in TECP 700-700, Vol. III, Section 7-17, as a reference.

4.5.9 Chamber pressure. Cartridges conditioned at 20C ±1C (68F ±2F) for not less than two hours, -46C ±3C (-50 ±5F) for not less than six hours, and 65C ±1C (150F ±2F) for four to twelve hours shall be fired one shot at a time for chamber pressure measurements in a universal rifle using the SLAP chamber test barrel, 8649498, (45" long) secured to an accuracy mount. The chamber pressure test shall be conducted IAW TECP 700-700, Vol. III, Section 7-13.

4.5.10 Velocity. Cartridges conditioned at 20C ±1C (68F ±2F) for not less than two hours, -46C ±3C (-50 ±5F) for not less than six hours, and 65C ±1C (150F ±2F) for four to twelve hours shall be fired one shot at a time for velocity measurements in a universal rifle using the SLAP velocity and action time test barrel, 8649497, (45" long) secured to a rigid mount. The test shall be conducted IAW TECP 700-700, Vol. III, Section 7-3.

4.5.11 Waterproof. The test shall be conducted IAW TECP 700-700, Vol. III, Section 7-3. Fire the sample cartridges one shot at a time for velocity measurements in a universal rifle using the SLAP velocity and action time test barrel, 8649497, (45" long) secured to a rigid mount. The maximum time interval between removal from the water and firing shall not exceed three hours.

4.5.12 Yaw. Place a target with target paper, MIL-P-10831, or a yaw card in the line of fire 30.5 meters (100 feet) from the muzzle of the weapon. Fire the required number of shots using ammunition conditioned as required for the yaw tests in a universal rifle using the SLAP velocity and action time test barrel, 8649497, (45" long) secured to a rigid mount. After firing examine the target. Each bullet hole over 13 mm (1/2 inch) shall be reported as a failure. The yaw test may be performed concurrently with the velocity testing.

4.5.13 Stripping. The stripping test shall be conducted by firing the sample cartridges one shot at a time in a universal rifle using the SLAP velocity and action time test barrel, 8649497, (45" long) secured to a rigid mount at a target 46 meters (50 yards)from the muzzle of the weapon. Examine the the holes in the target. Holes the size of the penetrator approximately 8 mm show that the sabots performed properly by stripping from the penetrator forward of the target. Large holes approximately 13 mm (.50 inch) in diameter give indication that the sabot(s) did not strip from the penetrator and are, therefore, failures. If the number of 8mm (.30 inch) holes equals the number of rounds fired, the sample cartridges passed the test. Additional holes the size of the area multiplier shall be disregarded. The stripping test may be performed concurrently with the velocity or action time test.

4.5.14 Action time. The action time test shall be conducted IAW SCATP-7.62 firing one shot at a time for action time measurements in a universal rifle using the SLAP velocity and action time test barrel, 8649497, (45" long) secured to a rigid mount.

4.5.15 Function and casualty. The weapons shall be at room temperature at the beginning of the test and shall be cooled between bursts. The function and casualty test shall be conducted IAW TECP 700-700, Vol. III, Section 7-15, firing ammunition conditioned as required for the function and casualty tests in 100 round bursts in the following weapons:

a. Caliber .50 M2 Browning Machine Gun Heavy Barrel Flexible
b. Caliber .50 M2 Browning Machine Gun Heavy Barrel Turret Type (M48 and M48 Series)

Observe for compliance with Table II or Table IV, as applicable. Measure and record the cyclic rate for each test weapon.

4.5.16 Trace. The trace test cartridges shall be tested in either the:

a. Caliber .50 M2 Browning Machine Gun Heavy Barrel Flexible
b. Caliber .50 M2 Browning Machine Gun Heavy Barrel Turret Type (M48 and M48 Series)

The trace test shall be conducted IAW TECP 700-700, Vol. III, Section 7-18, and the following: Observation for trace performance shall be made at the weapon and at points 275 meters (300 yards) and 1370 meters (1500 yards) beyond the muzzle of the weapon on a line parallel to and approximately 70 meters (75 yards) from the line of trajectory. Firing at night fire at least three warmer shots to sight, warm, and foul the weapon. Then fire the sample cartridges in regular sequence allowing sufficient time between shots for each observer to record trace results at each observation point. Defects reported at more than one observation point for the same shot shall be recorded as a single failure. During firing observation shall also be made for (a) bullet bursting before striking bullet stop or target, (b) trace muzzle flash, and (c) erratic flight.

5. PACKAGING

5.1 Level A (worldwide shipment). See 5.2.1

5.2 Packing.

5.2.1 Level A (worldwide shipment). The cartridges shall be packed IAW Dwg. 12576456 and 12576457.

5.3 Marking and labeling. Marking and labeling of the packed cartridges shall be IAW Dwg. 12576456 and 12576457.

6. NOTES

(This section contains information of a general or explanatory nature that may be be helpful, but is not mandatory.)

6.1 Intended use. The cartridges covered by this specification are intended for use in Caliber .50 weapons having chamber and rifling configurations as shown on Dwg. 7312853.

6.2 Acquisition requirements.

a. Title, number, and date of this specification.

b. Type and level of packing for the cartridges.

c. Provisions for the submission of Inspection Equipment Designs (DI-R-100540) (see 6.3).

d. Provisions for the submission of acceptance inspection reports containing the final inspection results for each lot of ammunition presented to the government (see 6.4).

6.3 Submission of inspection equipment designs for approval. (See MIL-A-48078). Submit inspection equipment designs as required to Commander, ARDEC, ATTN: AMSMC-QAF-I (D), Picatinny Arsenal, N.J. 07806-5000. This address will be specified on the Contract Data Requirements List, DDform 1423 in the contract. Unless otherwise specified, data item DF-R-1714 will apply.

6.4 Submission of test data. In addition to the normal distribution of records, when the cartridge is procured by the US AMCCOM, one copy of all ballistic data and the ammunition data card for each lot shall be forwarded to: Commander, ARDEC, ATTN: AMSMC-QAF-S (D), Picatinny Arsenal, N.J. 07806-5000.

6.5 Hazard notice. The cartridge described herein and some of the cartridge components are flammable and explosive and, therefore, present hazards in manufacture, handling, storage, and shipment. the contractor shall recognize these hazards and shall take appropriate measures to prevent fire, explosion, adverse environmental, rough handling, corrosive atmosphere, and electrically induced incidents. Such measures shall include the employment of an effective safety program that addresses the inherent hazards associated with the cartridge.

6.6 Drawings. Drawings listed in Section 2 of this document under this heading US ARMY ARMAMENT RESEARCH, DEVELOPMENT, AND ENGINEERING CENTER (ARDEC) may also include drawings prepared by and identified as Edgewood Arsenal, Frankford Arsenal, Rock Island Arsenal, U.S. Army Armament Research and Development Command (ARRADCOM), or Picatinny Arsenal drawings. Technical data originally prepared by these activities is now under the care of ARDEC.

6.7 Changes from previous issue. Asterisks (or vertical lines) are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

6.8 Submission of alternative inspection provisions. Proposed alternative inspection provisions should be submitted by the contractor to the procuring contracting officer for evaluation and approval by the technical activity responsible for preparation of this specification.

6.9 Subject term (key word) listing. (Note: List all unique words which are specific to the item described by this document).

M2 Browning Machine Gun, Caliber .50
Machine Gun.
Polyetherimide (PEI)
Saboted Light Armor Piercing (SLAP) Ammunition
Small Arms Ammunition

Custodian:
Army-AR

Preparing activity:
Army-AR

(Project 1305-AD58)

*U.S. GOVERNMENT PRINTING OFFICE: 1991--504-034/50194

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.
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 document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:	1. DOCUMENT NUMBER	2. DOCUMENT DATE (YYMMDD)
	MIL-C-70663A (AR)	6 February 1991

3. DOCUMENT TITLE: CARTRIDGE, CALIBER .50 SLAP BALL AND TRACER (SABOTED LIGHT ARMOR PENETRATOR)

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle Initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Include Area Code) (1) Commercial (2) AUTOVON (If applicable)	7. DATE SUBMITTED (YYMMDD)

8. PREPARING ACTIVITY

a. NAME	b. TELEPHONE (Include Area Code) (1) Commercial	(2) AUTOVON
US Army ARDEC Standardization & Specification Office	(201) 724-6671	880-6671
c. ADDRESS (Include Zip Code) ATTN: SMCAR-BAC-S Picatinny Arsenal, NJ 07806-5000	IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Quality and Standardization Office 5203 Leesburg Pike, Suite 1403, Falls Church, VA 22041-3466 Telephone (703) 756-2340 AUTOVON 289-2340	