(SOP MP 70-6)

Mr. Miller/js/298-4222

TEST RECORD NO: S-510-18	TEST RECORD (Delete one)	DATE OF RECORD: 17 SEP 1985
DATE(S) OF TEST: July to August 1985	U.S. ARMY COMBAT SYSTEMS TEST ACTIVITY Aberdeen Proving Ground, MD 21005-5059	AUTHORITY: TECOM, Letter, AMSTE-CM-F, 19 April 1985
TYPE OF TEST: USATECOM PROJECT NO. 2-WE-600-016-029 Special Study for M16A2 Rifle Enhancement Program		REQUESTING AGENCY: CONTRACT NO: Not available WORK ORDER NO: 330-32574-30

OBJECT OF TEST

To determine ruggedness, safety, and useability of the Enhanced components of the M16A2 rifle.

TEST ITEM

20 each - M16A2 rifles with Enhanced components.
5 each - Standard M16A2 rifles.
5 each - M203 grenade launchers.
2 each - Night vision sights.
10,000 - Cartridges 5.56-mm ball M855, lot No. LC 85B300S325.

The Enhanced components tested in the evaluation consisted of a folding front sight assembly, removable carrying handle/rear sight assembly; and auxiliary, folding rear sight assembly.

TEST FACILITIES

a. Indoor 91.4 meter range (closed range No. 4).
b. Environmental test chamber (-46 °C, +68 °C) and range (Bldg 387, room No. 2).
c. Maximum elevation/depression firing range (Romney Creek).
d. Function firing range (Michaelsville position No. 11).
e. Computerized cyclic rate recorder (Oehler System 82).
f. Metrology Laboratory (Bldg 400).
g. Nondestructive Test Laboratory (Bldg 525).

The use of trade names in this test record does not constitute an official indorsement or approval of the use of such commercial hardware or software. This test record may not be cited for purposes of advertisement.

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REMARKS

a. The testing planned (encl 1) was modified early in the program when the initial 60-round function check of the rifles revealed loosening of the carrying handle/rear sight assembly from the upper receiver.

b. The restructured test consisted of the following subtests to establish durability of the Enhanced upper receiver:

(1) 120-round firing of Enhanced rifles 1 to 5, and 16 to 20 at +80° muzzle altitude.

(2) Low temperature (-46 °C) drop test series with Enhanced rifles 2, 7, 12, 17 and standard M16A2 rifle No. 2A.

(3) Pre- and post-drop test accuracy/dispersion firing of the rifle listed in b(2) above (five 10-round targets fired at 91.4 meters range with each rifle).

(4) Combined hot barrel and obstructed bore test sequence with Enhanced M16A2 No. 3. The sequence consisted of firing 449 rounds to heat the rifle barrel, followed by chambering a round modified to prevent bolt locking. After the unlocked breech cook-off occurred, the rifle was inspected for damage. After initial damage assessment, other firing was done with the same rifle to include firing of a single round into a projectile which was lodged in-bore at the muzzle; firing with a mud obstructed bore (12 in. of mud in-bore from the muzzle); and with a bore full of water. Inspections were made after each firing to determine structural damage.

c. The results of the restructured testing are reported in Enclosure 2 through 5. An overall assessment of the Enhanced weapon components is contained in Enclosure 6.

TEST RECORD NO: S-510-18 (Continued) Use additional sheets, if required.

REMARKS

d. This is the final report in this task.

6 Encl
1. Test Plan Outline
2. Inspection Data
3. Accuracy and Dispersion Data
4. Function Firing Data
5. Photographs
6. Test Item Design Review

OBSERVERS

None.

SIGNATURE:

Franklin H. Miller, Test Director

Paul E. Kertis, Director, Armament Sys Dir

DISTRIBUTION:

Cdr, TECOM, ATTN: AMSTE-CM-F (Mr. Cole) (3 copies)
Cdr, ARDC, ATTN: SMCAR-SCJ (Mr. Wreden) Dover, NJ (10 copies)
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This test record signifies that the requested testing has been completed. It does not constitute approval or disapproval of the test item by Aberdeen Proving Ground.

STEAP-MT Form 180, 1 Jul 74 Edition of 10 Jul 70, may be used

TEST PLAN OUTLINE

Test plan outline for the Enhanced M16A2 Rifle Program, TECOM Project No. 2-WE-600-016-009.

1. Purpose

This test program is designed to evaluate safety, operational reliability, durability, and human factors aspects of redesigned components of the M16A2 rifle which are designed to enhance the overall capability of the rifle.

2. Scope

a. The testing deals only with determination of the enhanced components' ability to fulfill the role of parts which they replace. In order to demonstrate this ability, the test rifle, in various configurations, will be tested for dimensional changes by measuring the components before and after the rough handling and environmental sequences and by firing to determine changes in shot group location and size.

b. Optical sights will not be tested during this test. Only the basic measuring system and sights which are to be an integral part of the standard issue rifle will be tested.

c. Energy conservation will be considered during the conduct of this test.

d. A review of the environmental consequences of conducting this test has been made. There is no adverse environmental impact as a result of this test.

3. Test Criterion

The M16A2 rifle shall function in a normal manner when equipped with Enhanced components. The term normal is defined as being performance equal to or better than that exhibited by the standard M16A2 rifle.

4. Test Methods

a. Prior to the firing of the test and the control rifles, visual, dimensional, and operational inspections will be made as follows:

(1) Measure barrel bore straightness.

(2) Measure barrel bore land and groove diameters.

(3) Measure headspace, firing pin protrusion and trigger pull force.

(4) Obtain critical measurements of all enhanced components.

(5) Weigh each weapon in its test configuration.

b. After obtaining the above measurements, the rifles will be fired to obtain functioning, ejection pattern, cyclic rate, accuracy/dispersion, and velocity data. Functioning consists of firing the rifles 60 rounds; 30 rounds semiautomatic followed by ten 3-round bursts fired at the rate of 85 shots/minute (spm). The natural cyclic rate of each rifle will be measured for all controlled burst firing. While firing these 60 rounds, the ejection patterns of fired cases will be ascertained. All rifles will be fired 120 rounds in 3-round bursts in the top side up (TSU) orientation at attitudes of +80 and -80° with a normal hold on the rifle (i.e., shoulder fired). Rifles equipped with the M203 grenade launcher will also be fired five rounds each at these two attitudes with 40-mm ammunition.

c. Following the attitude firing, all rifles will be zeroed at 25 meters and then fired for velocity and accuracy/dispersion (fired concurrently). All short range firings will be done in an enclosed range (minimum of 91.4 meters) equipped with adequate, uniform lighting to prevent sight picture distortion. The enhanced rifles equipped with the standard sight and the control rifles will also be fired at ranges at 300 and 600 meters (no velocity) for a limited sight calibration verification. Three 10-round targets will be fired at each range with each rifle. Crosswind velocity will not exceed 10 m/sec during firing.

d. Interchangeability of the standard Enhanced carrying handle sight among test rifles will be checked by both measurement and firing. The test will address repeatability of removal and installation of a sight on the same rifle and among other rifles. For this purpose, an optical sight will be attached to the carrying handle and the handle installed on its assigned rifle. The rifles will be held in a fixed rest and the sight alined on a fixed aiming point. A boresight will then be inserted into the muzzle of the barrel and its sight location correlated to the optical sight target aim point. The sight handle will then be removed and reinstalled and any changes in the relative position between telescopic sight and boresight aim points will be measured. A total of ten trials will be made with each rifle. The mounted telescopic scope/handle assembly will be transferred from rifle to rifle and changes in sight alinement will be noted. Each telescopic sighted rifle will be fired at three 10-round targets at 91.4 meters range for each stage of the interchange

test. Standard attachments such as MILES, muzzle launched grenades, blank firing attachments, etc., are used to determine if the Enhanced front sight design is compatible.

e. Ruggedness/adverse conditions. Ambient drop (2.1 meters).

(1) Top side up (TSU).

(2) Top side down (TSD).

(3) Right side up (RSU).

(4) Left side up (LSU).

(5) Butt down (BD).

(6) Muzzle down (MD).

After each drop orientation, the rifles will be inspected for retention of sight alinement. After completion of the entire drop series, and accuracy/dispersion test will be performed.

The test will be repeated at low temperature with a second set of rifles except the sight alinement will be checked only before and after the drop test series (six drops). An accuracy/dispersion test will be fired after the drop series is completed. Firing will be conducted at ambient temperature only.

f. Sand/dust test is performed as a static type test. The rifles will be placed in a dust chamber with their respective sights in an operating position. The rifles will then be subjected to dust conditioning. After conditioning, the rifles will be removed from the chamber, the sights will be removed/reinstalled or depressed/erected, as appropriate. After operation of the enhanced components and their return to operating position, sight alinement checks will be made by firing three 10-round accuracy/dispersion targets at 91.4 meters.

g. Mud test preparations will be similar to those for the dust test. The rifles will be immersed for 1 minute in the standard mud mixture and then the rifles will be removed and the Enhanced components will be operated as in the dust test. The test firing performed in the dust test will be repeated.

h. Salt fog testing will be performed in accordance with MIL-STD-810D/TOP 3-2-059. One half of the samples will have their sights in the operating position and the other half will have their sights in the removed or down condition, as appropriate. The test firing performed in the dust test will be repeated.

i. Obstructed bore test will be performed by blocking the bore of a rifle and firing one round of ball ammunition to determine the breakage pattern of the upper receiver and to compare that with the breakage pattern of the standard M16A2 rifle.

j. A hot barrel test will be performed to determine whether the muzzle end of the barrel of the M16A2 rifle will become sufficiently hot to anneal the detent spring of the front flip-up sight. Three hundred rounds will be fired as rapidly as possible. The detent spring of the front sight will then be examined to determine its ability to hold the front flip-up sight in position.

k. Weapon useage.

Rifle No.	Configuration	Environment	Drop Attitude					
			TSU	TSD	RSU	LSU	BD	MD
1	Standard handle	Ambient	X	X	X	X	X	X
2	Standard handle	Cold	X	X	X	X	X	X
3	Standard handle	Attitudes						
4	Standard handle	Mud/sand and dust						
5	Standard handle	Salt fog						
6	Auxiliary sight	Ambient	X	X	X	X	X	X
7	Auxiliary sight	Cold	X	X	X	X	X	X
8	Auxiliary sight	Attitudes						
9	Auxiliary sight	Mud/sand and dust						
10	Auxiliary sight	Salt fog						
11	Night sight	Ambient	X	X	X	X	X	X
12	Night sight	Cold	X	X	X	X	X	X
13	Night sight	Attitudes						
14	Night sight	Mud/sand and dust						
15	Night sight	Salt fog						
16	M203 GL with	Ambient	X	X	X	X	X	X
17	Standard handle	Cold	X	X	X	X	X	X
18	Standard handle	Attitudes						
19	Standard handle	Mud/sand and dust						
20	Standard handle	Salt fog						

TSU = top side up.
TSD = top side down.
RSU = right side up.
LSU = left side up.
BD = bottom down.
MD = muzzle down.

l. Safety aspects of the weapons will be observed throughout the test.

m. Human factors aspects of the weapons will be observed throughout the test.

INSPECTION DATA

a. Laboratory report No. 86-MM-5 contains data from initial inspection of all Enhanced and Standard M16A2 Rifles. All rifles were new at the start of this evaluation.

b. Laboratory report No. 86-MM-15 contains data for after-test measurements of Enhanced rifle No. 3 which completed the hot barrel/obstructed bore test sequence. Also contained in this report are measurements for Enhanced rifles which were subjected to the low temperature drop test series.

TABLE 1. WEIGHTS (POUNDS) OF STANDARD AND ENHANCED M16A2 RIFLES AND COMPONENTS/ATTACHMENTS

Wpn No.[a]	Rear Sight/ Handle	Rifle With Auxiliary Sight	Basic Rifle	Basic Rifle With M203[b]	Grenade Launcher M203	Night Vision Sight	Rifle With Night Vision Sight	Remarks
			M16A2 Enhanced Rifles					
1	0.46	7.32	7.78					
2	.46	7.30	7.76					Drop tested at -46 °C.
3	.46	7.28	7.74					Fired with obstructed bore.
4	.46	7.32	7.78					
5	.46	7.32	7.78					
6	.46	7.30	7.76					
7	.46	7.30	7.76					Drop tested at -46 °C.
8	.46	7.28	7.74					
9	.46	7.35	7.71					
10	.46	7.27	7.73					
11	.46	7.26	7.72					
12	.46	7.30	7.76			c3.83	11.13	Drop tested at -46 °C.
13	.46	7.25	7.71					
14	.46	7.31	7.77					
15	.46	7.29	7.75					

See footnotes at end of table.

TABLE 1 (CONT'D)

Wpn No.[a]	Rear Sight Handle	Rifle With Auxiliary Sight	Basic Rifle	Basic Rifle With M203[b]	Grenade Launcher M203	Night Vision Sight	Rifle With Night Vision Sight	Remarks
16	0.46	7.28	7.74	10.30	2.56			
17	.46	7.22	7.68	10.34	2.66			Drop tested at -46 °C.
18	.46	7.24	7.71	10.34	2.63			
19	.46	7.26	7.72	10.34	2.62			
20	.46	7.25	7.71	10.34	2.63			
Max	.46	7.32	7.78	10.34	2.56	-	-	
Min	.46	7.22	7.68	10.30	2.66	-	-	
Avg	.46	7.28	7.74	10.33	2.62	-	-	
Extreme spread	-	0.10	0.10	0.04	0.10	-	-	
			Standard M16A2 Rifles					
1A			7.48					
2A			7.46			d3.94	11.40	Drop tested at -46 °C temp without night vision sight.
3A			7.46					
4A			7.44					
5A			7.47					
Max			7.48			-	-	
Min			7.44			-	-	
Avg			7.46			-	-	
Extreme Spread			0.04			-	-	

[a]Weapon No. 2, 7, 12, 17, Enhanced and two (Standard) fired for accuracy and dispersion.
[b]Add 0.21 pound to total weight for grenade launcher sight attached to carring handle for rifle.
[c]Night vision sight marked AN/PVS-4( ) (V), SN 95200, manufacturer, Varo, Inc., contract No. DAAK02-71C-0054.
[d]Night vision sight marked SU-87/PVS-4, SN 3023, NSN 5855-01-017-7366, manufacturer, Varo, Inc.

Test Record No. S-510-18

ENGINEERING DIRECTORATE
PHYSICAL TEST DIVISION
MATERIALS BRANCH
DATA REPORT NO. 86-MM-5

STECS-EN-PM DATES OF TEST 22 July 85

Title M16A2, 5.56-MM Barrel Measurements

TECOM Project Title M16A2 Rifle Enhancement Program

TECOM Project No. 2-WE-600-016-029 W.O. No. 330-32574-30

Conducted For Mr. Frank Miller, Small Arms Systems Branch, Armament Systems Directorate

References None

INTRODUCTION:

The Small Arms Systems Branch requested specific measurements of M16A2 5.56-mm barrels.

RESULTS:

See Enclosure 1 for data on the M16A2 5.56-mm barrel measurements.

1 Enclosure

SUBMITTED BY:

Richard Swann
RICHARD SWANN
Materials Branch

REVIEWED BY:

C R Klarich
C. R. KLARICH
Chief,
Materials Branch

APPROVED BY:

for
K. A. JONES, JR.
Chief,
Physical Test Divsion

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

- **CASTING NUMBER:**
- **MANUFACTURER:**
- **MODEL:** M16-A2 (Enhanced)
- **PROOF OFFICER:** F. Miller
- **W.O.** 330-32574-30
- **NUMBER OF ROUNDS:** BF APG
- **NUMBER:** 1
- S/N 6095242
- **FIRING STATUS (Check One):** BEFORE: X — AFTER:
- 5.56 MM Barrel
- **DATE OF GAUGING:** 28 JUN 85

Dist. (Inches) From Face of Flash Suppressor	Gage Meas. indicated in .0001 of an inch — LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0002	+.0003	+.0002	+.0003	+.0001	+.0002
2.00	0	1	1	1	0	0
3.00	+.0001	2	2	2	+.0002	+.0002
4.00	2	2	3	2	2	1
5.00	2	1	1	2	1	1
6.00	2	1	2	2	1	2
7.00	1	1	1	1	2	2
8.00	* 3	3	2	* 3	2	3
9.00	4	4	4	3	3	4
10.00	5	6	5	4	4	5
11.00	5	4	4	4	4	4
12.00	3	3	4	3	2	3
13.00	2	3	3	2	2	3
14.00	3	3	3	2	3	3
15.00	5	5	4	4	3	3
16.00	3	1	3	+.0001	1	+.0001
17.00	1	2	1	0	+.0001	0
18.00	2	+.0001	2	0	0	+.0001
18.35	+.0002	0	+.0001	-.0001	0	0
18.85	-.0001	-.0002	-.0001	2	-.0002	-.0001
19.10	-.0001	-.0002	-.0001	-.0002	-.0002	-.0002

Land No.1 at 12 o'clock (Muzzle)

* 8.20 GAS PORT

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the chamber front slope, and adjacent to and aft of the case clearance shoulder. Light tool marks in the bore, starting at the bullet seat and extending forward to the origin of rifling. A small chipped out area of chrome plating in the groove at the one o'clock position, located 1.90 inches from the rear face of the barrel. Light intermittent tool chatter marks throughout the bore. Light copper and carbon deposits throughout the bore. Chipped out plating at the forward edge of the gas port. Tool marks across the lands at the ten and twelve o'clock positions, located 0.05 of an inch aft of the muzzle end of the barrel.

ST[illegible] Form 106 17 Jun 64 (Part I)

Eric

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 1

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.004	.004	.0040
3.00	0	0	+.004	0	.0040
4.00	0	0	+.005	.001	.0010
5.00	0	0	+.006	.001	.0010
6.00	0	0	+.007	.001	.0010
7.00	0	0	+.007	0	.0000
8.00	R .001	.001	+.008	.001	.0014
9.00	R .001	0	+.008	0	.0000
10.00	R .001	0	+.009	.001	.001
11.00	R .001	0	+.009	0	.0000
12.00	0	.001	+.008	.001	.0014
13.00	0	0	+.007	.001	.0010
14.00	0	0	+.006	.001	.0010
15.00	0	0	+.004	.002	.0020
16.00	0	0	+.004	0	.0000
17.00	0	0	+.003	.001	.0010
18.00	0	0	+.001	.002	.0020
18.50	0	0	0	.001	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0091

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

NUMBER	MODEL	MANUFACTURER	CASTING NUMBER
2	M16-A2 (Colt) S/N 6095266		

FIRING STATUS (Check One): BEFORE [X] AFTER [ ]

NUMBER OF ROUNDS: BF AP6

PROOF OFFICER: F. Miller W.O. 330-32574-30

DATE OF GAUGING: 28 Jun 85

Dist. (Inches) From Face of Flash Suppressor | Gage Meas. Indicated in .0001 of an Inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0000	+.0001	+.0000	+.0003	+.0002	.0000
2.00	1	1	0	2	2	+.0002
3.00	3	2	+.0002	3	3	4
4.00	3	3	4	3	4	3
5.00	3	3	2	3	3	3
6.00	3	3	2	3	3	4
7.00	2	3	4	3	4	5
8.00	* 5	4	3	* 6	5	5
9.00	4	5	3	6	4	5
10.00	6	5	5	6	6	4
11.00	4	4	5	6	4	5
12.00	5	4	4	3	6	5
13.00	3	3	4	7	4	3
14.00	5	5	2	4	5	6
15.00	4	2	5	5	6	4
16.00	3	6	4	6	5	5
17.00	7	3	4	5	5	4
18.00	3	4	6	5	4	4
18.35	2	4	4	5	5	3
18.85	2	3	+.0001	4	4	2
19.10	+.0001	+.0002	-.0002	+.0003	+.0001	+.0001

Land No.1 at 12 o'clock (Muzzle)

* 5.20 Gas Port

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the centering cylinder. The chrome plating is chipped off the land at the forward edge of the gas port. Light to moderate pitting throughout the bore. Light copper and carbon deposits throughout the bore. Tool marks across the lands at the twelve and two o'clock positions, located 0.05 of an inch aft of the muzzle end of the barrel.

STARGAGE Form 104 17 Ju (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 2

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	L .001	.001	-.001	.001	.0014
3.00	L .001	0	-.002	.001	.0010
4.00	L .001	0	-.003	.001	.0010
5.00	L .002	.001	-.003	0	.0010
6.00	L .001	.001	-.004	.001	.0014
7.00	L .002	.001	-.004	0	.0010
8.00	L .002	0	-.004	0	.0000
9.00	L .002	0	-.003	.001	.0010
10.00	L .001	.001	-.003	0	.0010
11.00	L .001	0	-.002	.001	.0010
12.00	L .001	0	-.002	0	.0000
13.00	L .001	0	-.001	.001	.0010
14.00	0	.001	-.001	0	.0010
15.00	0	0	0	.001	.0010
16.00	L .001	.001	-.001	.001	.0014
17.00	0	.001	0	.001	.0014
18.00	0	0	0	0	.0000
18.50	0	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0045

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

NUMBER	MODEL	MANUFACTURER	CASTING NUMBER
3	M16A2 (Enhanced)		

S/N 609479

PROOF OFFICER R. Miller
W.O. 330-32574-30

NUMBER OF ROUNDS BF APG

FIRING STATUS (Check One) X BEFORE AFTER

DATE OF GAUGING 28 Jun 85

5.56 MM Barrel

Dist. (Inches) From Face of Flash Suppressor	Gage Meas. Indicated in .0001 of an inch LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0002	+.0003	+.0003	+.0004	+.0004	+.0004
2.00	2	3	3	3	4	4
3.00	4	3	4	4	4	4
4.00	4	5	5	6	5	4
5.00	4	5	4	5	4	5
6.00	6	6	6	5	7	6
7.00	6	5	5	5	5	5
8.00	6	* 6	5	* 6	6	6
9.00	5	7	6	5	6	6
10.00	8	6	7	5	8	7
11.00	4	8	8	5	7	7
12.00	7	7	3	7	6	5
13.00	5	4	6	5	4	5
14.00	4	7	6	5	5	6
15.00	6	6	6	3	6	4
16.00	5	7	4	4	4	5
17.00	6	3	5	4	5	4
18.00	5	6	5	4	4	4
18.35	4	5	5	4	4	4
18.85	4	3	4	3	4	4
19.10	+.0004	+.0003	+.0004	+.0003	+.0004	+.0004

Land No.1 at 12 o'clock (Muzzle)

* 8.20 Gas Port

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the centering cylinder and bullet seat. Intermittent tool gouge marks around the periphery of the centering cylinder, located just aft of the case clearance shoulder. Intermittent tool chatter marks throughout the bore. Light erosion at the forward edge of the gas port. Light carbon and copper deposits throughout the bore.

STARGAGE Form 196 17 Jun 64 (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 3

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	R .001	.001	0	0	.0010
3.00	0	.001	-.001	.001	.0014
4.00	R .001	.001	-.001	0	.0010
5.00	R .001	0	-.001	0	.0000
6.00	R .002	.001	-.002	.001	.0014
7.00	R .003	.001	-.002	0	.0010
8.00	R .002	.001	-.002	0	.0010
9.00	R .003	.001	-.001	.001	.0014
10.00	R .002	.001	-.001	0	.0010
11.00	R .002	0	-.002	.001	.0010
12.00	R .002	0	-.001	.001	.0010
13.00	R .002	0	0	.001	.0010
14.00	R .002	0	-.001	.001	.0010
15.00	R .001	.001	0	.001	.0014
16.00	R .001	0	-.001	.001	.0010
17.00	R .001	0	0	.001	.0010
18.00	0	.001	+.001	.001	.0014
18.50	0	0	0	.001	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.003⅝

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

- 5.56 MM Barrel
- NUMBER: 4
- MODEL: M16-A2 (Enhanced)
- S/N 6095491
- MANUFACTURER:
- CASTING NUMBER: X
- PROOF OFFICER: F. Miller
- W.O. 330-32574-30
- NUMBER OF ROUNDS: BF APG
- FIRING STATUS (Check One): BEFORE X / AFTER
- DATE OF GAUGING: 25 Jun 85

5.56 MM Barrel

Dist. (inches) From Face of Flash Suppressor	Gage Meas. indicated in .0001 of an inch: LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0003	+.0004	+.0003	+.0003	+.0003	+.0002
2.00	2	2	2	2	2	2
3.00	4	4	3	4	3	3
4.00	4	4	4	4	4	3
5.00	4	4	4	4	4	4
6.00	4	5	4	4	4	4
7.00	4	4	3	4	3	4
8.00	* 5	4	4	* 3	3	4
9.00	4	5	5	4	4	4
10.00	8	7	6	6	6	6
11.00	8	8	8	6	6	7
12.00	9	8	8	7	7	7
13.00	9	8	9	6	7	7
14.00	8	9	9	6	6	6
15.00	8	8	8	6	6	6
16.00	7	8	7	6	4	7
17.00	6	6	6	5	4	5
18.00	4	5	5	3	3	4
18.35	4	4	4	3	2	+.0002
18.85	+.0002	+.0001	+.0001	+.0001	+.0001	0
19.10	0	0	-.0001	-.0001	-.0002	-.0001

Land No.1 at 12 o'clock (Muzzle)

* 8.20 GAS PORT

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the centering cylinder and bullet seat. Intermittent light to moderate tool chatter marks throughout the bore located between the ten and two o'clock positions. Light intermittent pitting throughout the bore. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

STANAG [illegible] 17 Jun 64 ([illegible])

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 4

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	-.001	.001	.0010
3.00	0	0	-.002	.001	.0010
4.00	0	0	-.002	0	.0000
5.00	0	0	-.003	.001	.0010
6.00	0	0	-.004	.001	.0010
7.00	0	0	-.004	0	.0000
8.00	R .001	.001	-.004	0	.0010
9.00	0	.001	-.003	.001	.0014
10.00	0	0	-.003	0	.0000
11.00	0	0	-.002	.001	.0010
12.00	L .001	.001	-.002	0	.0010
13.00	L .001	0	-.001	.001	.0010
14.00	0	.001	-.001	0	.0010
15.00	R .001	.001	0	.001	.0014
16.00	0	.001	-.001	.001	.0014
17.00	R .001	.001	-.001	0	.0010
18.00	R .001	0	-.001	0	.0000
18.50	0	.001	0	.001	.0010
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0041

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	MANUFACTURER	MODEL	NUMBER OF ROUNDS	NUMBER	FIRING STATUS (Check One)	DATE OF GAUGING
X	F. Miller (Enhanced)	M16A2 S/N 609 5492	BF APG	5	X BEFORE / AFTER	27 JUN 85

PROOF OFFICER F. Miller
W.O. 330-32574-30

5.56 MM Barrel

Dist. (inches) from Face of Flash Suppressor | Gage Meas. indicated in .0001 of an inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0004	+.0002	+.0004	+.0001	.0000	+.0002
2.00	3	2	3	0	0	0
3.00	4	4	4	+.0001	+.0001	+.0001
4.00	5	5	4	2	2	2
5.00	5	5	3	2	2	3
6.00	5	5	5	2	3	2
7.00	5	5	5	3	1	2
8.00	5	* 5	5	* 3	1	3
9.00	7	5	6	1	2	3
10.00	7	7	8	3	4	2
11.00	8	8	6	3	3	3
12.00	7	6	6	1	3	+.0004
13.00	6	5	5	2	+.0003	0
14.00	4	6	6	3	0	+.0002
15.00	4	6	3	1	+.0002	1
16.00	6	3	5	+.0002	1	1
17.00	2	5	3	0	1	1
18.00	5	5	4	+.0002	1	+.0001
18.35	+.0003	+.0004	3	+.0001	+.0001	0
18.85	.0000	.0000	1	-.0002	-.0002	-.0002
19.10	+.0001	+.0002	+.0001	-.0004	-.0004	-.0003

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: Light circumferential tool marks on the centering cylinder and bullet seat. Intermittent light to moderate tool chatter marks throughout the bore, located between the three and six o'clock positions. Light pitting in the bore, located between the gas port and the muzzle end of the barrel. Light erosion at the forward edge of the gas port. Light carbon and copper deposits throughout the bore.

STRICOM Form 196 17 Jun 64 (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BOR. STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 5

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	0	0	0	0	.0000
4.00	0	0	0	0	.0000
5.00	R .001	.001	0	0	.0010
6.00	R .002	.001	0	0	.0010
7.00	R .003	.001	0	0	.0010
8.00	R .003	0	0	0	.0000
9.00	R .003	0	0	0	.0000
10.00	R .003	0	0	0	.0000
11.00	R .003	0	+.001	.001	.0010
12.00	R .003	0	+.002	.001	.0010
13.00	R .003	0	+.002	0	.0000
14.00	R .003	0	+.002	0	.0000
15.00	R .003	0	+.001	.001	.0010
16.00	R .003	0	+.001	0	.0000
17.00	R .002	.001	+.001	0	.0010
18.00	R .001	.001	0	.001	.0014
18.50	0	.001	0	0	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0036

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	MANUFACTURER	PROOF OFFICER	MODEL	NUMBER OF ROUNDS	NUMBER	FIRING STATUS (Check One) BEFORE	FIRING STATUS (Check One) AFTER	DATE OF GAUGING
		W.O. 330-32574-30	M16A2 (Enhanced)	6095493 BF APG	6	X		27 JUN 85

Dist. (Inches) From Face of Flash Suppressor — Bore Mean, Indicated in .0001 of an inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0003	+.0004	+.0004	+.0004	+.0005	+.0005
2.00	2	3	2	4	4	4
3.00	3	4	3	5	5	5
4.00	5	4	5	6	5	5
5.00	4	4	4	5	5	5
6.00	5	5	3	6	6	6
7.00	5	4	3	5	5	5
8.00	5	5	2	* 6	4	5
9.00	4	5	3	6	6	5
10.00	6	5	5	7	6	6
11.00	5	6	6	6	6	6
12.00	5	6	4	6	5	5
13.00	5	5	3	5	5	5
14.00	5	4	5	5	5	6
15.00	3	3	3	4	5	4
16.00	3	4	3	4	4	3
17.00	4	3	3	4	3	3
18.00	1	1	4	2	2	2
18.35	1	2	3	2	2	2
18.85	1	2	1	1	1	1
19.10	+.0001	+.0003	+.0002	+.0002	+.0002	+.0001

Land No.1 at 12 o'clock (Muzzle)

* 8.20" Gas Port

Twist of Rifling:

Borescope Remarks: The lands at the twelve, two, four and ten o'clock positions have a small area of shipped out chrome plating, located 1.90 inches form the rear face of the barrel (RFB). Small pits in the chrome plating of the grooves, located at the ten and two o'clock positions, and 2.80 inches from the RFB. There is a series of small pits aling the non-driving edge of the land at the twelve o'clock position, located between 11.30 and 12.10 inches from the RFB. Light erosion at the forward edge of the gas port. Intermittent tool chatter marks throughout the bore. Light copper and carbon deposits throughout the bore.

STRICOM Form 10[illegible] 17 Jun 8[illegible] Part I)

Test Record No. S-510-18

FOR: FRANK MILLE
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 6

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	-.001	.001	.0010
3.00	0	0	-.002	.001	.0010
4.00	0	0	-.003	.001	.0010
5.00	R.001	.001	-.004	.001	.0014
6.00	R.003	.002	-.005	.001	.0022
7.00	R.003	0	-.005	0	.0000
8.00	R.003	0	-.006	.001	.0010
9.00	R.004	.001	-.006	0	.0010
10.00	R.003	.001	-.003	.003	.0032
11.00	R.003	0	-.003	0	.0000
12.00	R.004	.001	-.003	0	.0010
13.00	R.005	.001	-.002	.001	.0014
14.00	R.003	.002	-.001	.001	.0022
15.00	R.003	0	-.001	0	.0000
16.00	R.003	0	-.001	0	.0000
17.00	R.001	.002	0	.001	.0022
18.00	0	.001	0	0	.0010
18.50	0	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	X
MANUFACTURER	(Enhanced)
PROOF OFFICER	W.O. 330-32574-30
MODEL	M16A2 (Enhanced)
NUMBER OF ROUNDS	609 5795 S/N BF. AP6
FIRING STATUS (Check One)	BEFORE X AFTER
NUMBER	7
DATE OF GAUGING	27 Jun 85
5.56 MM Barrel	

Dist. (inches) From Face of Flash Suppressor — Gage Meas. indicated in .0001 of an inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0004	+.0003	+.0003	+.0001	+.0001	+.0001
2.00	1	2	1	0	1	0
3.00	3	3	2	+.0002	1	+.0001
4.00	3	2	3	2	2	2
5.00	2	3	3	2	3	2
6.00	3	4	2	3	3	3
7.00	4	2	1	3	1	2
8.00	3 *	3	3	2 *	3	2
9.00	2	4	3	3	3	2
10.00	6	5	4	4	3	4
11.00	5	5	6	4	5	5
12.00	6	7	4	5	5	3
13.00	6	5	4	4	3	3
14.00	4	3	3	2	2	4
15.00	3	4	5	2	4	2
16.00	4	6	3	4	4	2
17.00	6	3	4	2	2	3
18.00	1	3	4	1	2	+.0002
18.35	2	4	3	2	3	0
18.85	1	3	1	+.0001	+.0001	-.0001
19.10	+.0001	+.0001	+.0001	0	0	-.0002

Land No.1 at 12 o'clock (Muzzle)

* 8.2 GAS PORT

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the chamber front slope; centering cylinder and bullet seat. Light intermittent tool chatter marks throughout the bore. Light erosion at the forward edge of the gas port. Light intermittent pitting in the bore, located between the gas port and the muzzle end of the barrel. Light copper and carbon deposits throughout the bore.

STRICOM Form 196 17 Jun 84 (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 7

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	R.002	.002	-.001	.001	.0022
3.00	R.002	0	-.001	0	.0000
4.00	R.001	.001	-.002	.001	.0014
5.00	R.001	0	-.002	0	.0000
6.00	R.001	0	-.002	0	.0000
7.00	R.002	.001	-.003	.001	.0014
8.00	R.001	.001	-.003	0	.0010
9.00	R.001	0	-.002	.001	.0010
10.00	R.001	0	-.002	0	.0000
11.00	R.001	0	-.001	.001	.0010
12.00	R.001	0	-.002	.001	.0010
13.00	R.001	0	-.001	.001	.0010
14.00	R.001	0	-.001	0	.0000
15.00	R.001	0	-.001	0	.0000
16.00	R.001	0	-.002	.001	.0010
17.00	0	.001	-.001	.001	.0014
18.00	0	0	-.001	0	.0000
18.50	0	0	0	.001	.0010
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

TOTAL BEND
.0036

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

Dist. (Inches) From Face of Flash Suppressor	Gage Mean, Indicated in .0001 of an inch					
	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	-.0001	0	-.0002	0	-.0002	-.0002
2.00	0	-.0001	-.0001	-.0001	-.0002	-.0001
3.00	0	+.0001	+.0001	0	0	0
4.00	+.0002	2	1	+.0002	+.0001	+.0001
5.00	3	3	2	2	2	1
6.00	4	3	3	3	2	2
7.00	3	3	4	3	2	2
8.00	* 5	4	5	* 3	3	2
9.00	5	5	4	3	3	2
10.00	7	5	6	4	5	4
11.00	7	6	6	4	4	4
12.00	6	6	2	3	3	2
13.00	6	2	5	3	3	3
14.00	1	6	5	3	3	3
15.00	5	5	3	2	3	3
16.00	6	4	6	4	1	1
17.00	4	5	4	2	2	2
18.00	4	3	4	2	2	1
18.35	4	3	3	2	+.0002	+.0002
18.85	3	2	1	+.0001	0	0
19.10	+.0001	+.0001	+.0002	-.0001	-.0001	-.0002

Land No.1 at 12 o'clock (Muzzle)

* 8.20 Gas Port

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Light to moderate intermittent tool chatter marks throughout the bore, located between the four and seven o'clock positions. Light erosion at the forward edge of the gas port. Light intermittent pitting in the bore, located between the gas port and the mussle end of the barrel. Light copper and carbon deposits throughout the bore.

CASTING NUMBER:

MANUFACTURER: (Encircled)

PROOF OFFICER F. MILLER W.O. 330-32574-30

MODEL: M16A2 S/N 6107901

NUMBER OF ROUNDS: BF APG

NUMBER: 8

FIRING STATUS (Check One): X BEFORE / AFTER

5.56 MM Barrel

DATE OF GAUGING: 27 JUN 86

STRICOM Form 10[illegible] 17 Jun 6[illegible] (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 8

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.001	.001	.0010
3.00	R.001	.001	0	.001	.0014
4.00	0	.001	0	0	.0010
5.00	R.001	.001	+.001	.001	.0014
6.00	R.001	0	+.001	0	.0000
7.00	R.002	.001	+.002	.001	.0014
8.00	R.003	.001	+.001	.001	.0014
9.00	R.003	0	+.002	.001	.0010
10.00	R.004	.001	+.001	.001	.0014
11.00	R.003	.001	+.002	.001	.0014
12.00	R.004	.001	+.001	.001	.0014
13.00	R.004	0	+.001	0	.0000
14.00	R.003	.001	+.001	0	.0010
15.00	R.003	0	0	.001	.0010
16.00	R.003	0	-.001	.001	.0010
17.00	R.002	.001	-.001	.0	.0010
18.00	0	.002	0	.001	.0022
18.50	0	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

TOTAL BEND
.0041

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	X
MANUFACTURER	(Enhanced)
PROOF OFFICER	F. Miller
W.O.	330-32574-30
MODEL	M16A2
	S/N 6107902
NUMBER OF ROUNDS	B.F. AP6
NUMBER	9
FIRING STATUS (Check One) BEFORE	X
AFTER	
5.56 MM Barrel	
DATE OF GAUGING	27 Jun 85

Dist. (inches) from Face of Flash Suppressor | Gage Meas. indicated in .0001 of an inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.	+.0002	+.0003	+.0003	+.0001	+.0001	+.0001
2.00	2	3	3	1	1	1
3.00	3	4	4	2	3	2
4.00	5	6	4	4	3	2
5.00	5	5	4	3	3	3
6.00	5	5	5	4	4	3
7.00	3	5	5	4	3	3
8.00	6	6	5	* 4	3	3
9.00	5	6	5	4	4	3
10.00	8	7	6	5	4	4
11.00	8	8	8	5	4	4
12.00	8	8	8	4	4	4
13.00	7	7	7	4	4	4
14.00	7	7	6	4	4	4
15.00	7	6	7	4	4	4
16.00	5	7	6	4	4	4
17.00	6	6	5	4	3	3
18.00	6	5	5	4	3	3
18.35	5	4	5	3	3	3
18.85	3	3	3	1	+.0001	1
19.10	+.0007	+.0007	+.0006	+.0002	-.0000	+.0001

Land No.1 at 12 o'clock (Muzzle)

8.20 Port

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the centering cylinder and bullet seat. Light to heavy intermittent tool chatter marks throughout the bore, located between the twelve and three o'clock positions. Light erosion at the forward edge of the gas port. Light pitting in the bore located between the gas port and the muzzle end of the barrel. Light carbon and copper deposits throughout the bore.

STARGAGE Form 104 17 Jun 64 (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 9

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.001	.001	.0010
3.00	0	0	+.002	.001	.0010
4.00	0	0	+.002	0	.0000
5.00	0	0	+.003	.001	.0010
6.00	0	0	+.003	0	.0000
7.00	0	0	+.002	.001	.0010
8.00	0	0	+.001	.001	.0010
9.00	0	0	+.003	.002	.0020
10.00	L.001	.001	+.002	.001	.0014
11.00	L.002	.001	+.001	.001	.0014
12.00	0	.002	0	.001	.0022
13.00	L.002	.002	+.002	.002	.0028
14.00	L.002	0	0	.002	.0020
15.00	L.002	0	-.001	.001	.0010
16.00	L.001	.001	-.001	0	.0010
17.00	L.001	0	0	.001	.0010
18.00	0	.001	+.001	.001	.0014
18.50	0	0	0	.001	.0010
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0030

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	MANUFACTURER	PROOF OFFICER / W.O.	MODEL	NUMBER OF ROUNDS	FIRING STATUS (Check One) BEFORE	FIRING STATUS (Check One) AFTER	NUMBER	DATE OF GAUGING
	F. MILLER (Engraved)	F. MILLER 330-32574-30	M16A2 S/N 610 7903	B.F AP6.	X		10	27 Jun 85

Dist. (Inches) From Face of Flash Suppressor | Gage Mean Indicated in .0001 of an inch

	LANDS .2190" 1 - 4	LANDS .2190" 2 - 5	LANDS .2190" 3 - 6	GROOVES .2235 1 - 4	GROOVES .2235 2 - 5	GROOVES .2235 3 - 6
1.35	+.0002	0	0	0	0	+.0001
2.00	0	0	0	0	0	0
3.00	+.0002	+.0001	+.0001	+.0001	+.0001	+.0002
4.00	1	2	2	1	1	1
5.00	1	3	1	2	2	1
6.00	3	2	2	2	3	2
7.00	4	4	3	4	2	3
8.00	4	* 5	4	* 4	4	3
9.00	5	5	3	4	4	4
10.00	7	5	7	5	5	5
11.00	5	7	7	5	4	5
12.00	7	6	6	4	5	3
13.00	6	6	5	4	2	4
14.00	6	4	5	3	5	4
15.00	4	5	5	5	3	4
16.00	6	5	4	3	4	4
17.00	4	4	5	3	4	3
18.00	4	3	2	3	+.0001	3
18.35	3	+.0002	2	2	0	3
18.85	2	0	2	+.0001	0	2
19.10	+.0005	+.0001	+.0003	-.0001	0	+.0001

Land No.1 at 12 o'clock (Muzzle)

* 8.20 GAS PORT

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the chamber front slope and centering cylinder. Intermittent tool drag marks around the periphery of the centering cylinder. Light to heavy intermittent tool chatter marks throughout the bore, located primarily between the twelve and six o'clock (CW) positions. Light intermittent longitudinal tool drag marks throughout the bore. Light pitting in the bore, primarily located between the gas port and the muzzle end of the barrel. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

STARGAGE Form 106 17 Jun 64 (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 10

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	-.001	.001	.0010
3.00	0	0	-.001	0	.0000
4.00	0	0	-.002	.001	.0010
5.00	0	0	-.001	.001	.0010
6.00	0	0	-.001	0	.0000
7.00	-.001	.001	0	.001	.0014
8.00	-.001	0	0	0	.0000
9.00	0	.001	0	0	.0010
10.00	-.002	.002	+.001	.001	.0022
11.00	-.001	.001	+.001	0	.0010
12.00	-.001	0	+.001	0	.0000
13.00	-.001	0	+.002	.001	.0010
14.00	-.001	0	+.002	0	.0000
15.00	-.001	0	+.001	.001	.0010
16.00	-.001	0	+.002	.001	.0010
17.00	0	.001	+.001	.001	.0014
18.00	0	0	0	.001	.0010
18.50	0	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	X
MANUFACTURER	PROOF OFFICER F. MILLER W.O. 330-32574-30
MODEL	M16A2 (Enhanced) S/N 6107915
NUMBER OF ROUNDS	B.F. AP6.
NUMBER	11
FIRING STATUS (Check One)	X BEFORE / AFTER
DATE OF GAUGING	27 June 85

Dist. (Inches) From Face of Flash Suppressor | Gage Mean, Indicated in .0001 of an inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0002	+.0004	+.0003	+.0004	+.0004	+.0006
2.00	3	2	3	4	5	4
3.00	4	2	3	5	5	4
4.00	4	3	2	5	4	5
5.00	3	3	4	4	4	5
6.00	3	4	3	5	5	5
7.00	3	3	3	5	4	5
8.00	5	4	2	* 6	4	7
9.00	5	4	4	5	7	6
10.00	6	6	6	8	7	7
11.00	6	6	5	5	6	7
12.00	7	6	6	6	6	6
13.00	6	7	6	5	6	7
14.00	7	5	6	6	7	7
15.00	5	6	6	6	6	8
16.00	5	6	5	5	7	7
17.00	5	5	5	6	7	6
18.00	5	5	4	6	5	5
18.35	4	4	5	6	5	6
18.85	4	3	3	5	4	5
19.10	+.0003	+.0002	+.0005	+.0003	+.0003	+.0004

Land No.1 at 12 o'clock (Muzzle)

* 8.20 Gas Port

Twist of Rifling:

Borescope Remarks: The chamber has a peripheral tool mark just aft of the front slope. Circumferential tool marks on the chamber front slope and centering cylinder. Intermittent light to moderate pitting throughout the bore. Intermittent light longitudinal tool drag marks throughout the bore. There are four slight troughs in the bore, located at the three, five, eight and eleven o'clock positions at .15 of an inch from the muzzle end of the barrel. This condition was possibly caused by foreign material in the barrel during proof firing. Light copper and carbon deposits throughout the bore.

5.56 MM Barrel

STARRETT Form 196 17 Ju (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 11

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	R .001	.001	0	0	.0010
3.00	0	.001	0	0	.0010
4.00	R .001	.001	−.001	.001	.0014
5.00	R .002	.001	0	.001	.0014
6.00	R .002	0	0	0	.0000
7.00	R .002	0	0	0	.0000
8.00	R .002	0	−.001	.001	.0010
9.00	R .001	.001	−.001	0	.0010
10.00	R .002	.001	−.001	0	.0010
11.00	R .002	0	−.001	0	.0000
12.00	R .002	0	−.003	.002	.0020
13.00	R .002	0	−.002	.001	.0010
14.00	R .002	0	0	.002	.0020
15.00	R .001	.001	0	0	.0010
16.00	R .001	0	+.001	.001	.0010
17.00	R .002	.001	0	.001	.0014
18.00	0	.002	0	0	.0020
18.50	0	0	0	0	.0000
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0036

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER: X

MANUFACTURER: (Enhanced)

PROOF OFFICER FRANK MILLER
W.O. 330-325774-30

MODEL: M16A2

S/N 610 7918

NUMBER OF ROUNDS B.F. APG

NUMBER: 12

FIRING STATUS (Check One): BEFORE 4 / AFTER

DATE OF GAUGING: 27 June 85

5.56 MM Barrel

Dist. (inches) from Face of Flash Suppressor	Gage Mean, indicated in .0001 of an inch					
	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0003	+.0004	+.0004	+.0006	+.0006	+.0005
2.00	.0000	1	0	4	3	3
3.00	+.0003	2	+.0002	6	6	6
4.00	3	3	3	7	7	6
5.00	4	4	4	8	8	7
6.00	4	4	3	8	8	8
7.00	3	4	3	7	7	7
8.00	5	6	3	9	7	7
9.00	5	6	5	9	8	8
10.00	8	7	7	10	9	11
11.00	9	8	7	9	11	10
12.00	7	7	8	10	9	8
13.00	8	8	6	9	9	8
14.00	6	6	6	8	8	7
15.00	5	6	5	8	8	8
16.00	6	4	5	8	10	7
17.00	2	5	4	9	7	8
18.00	5	3	3	7	7	8
18.35	4	3	2	6	7	8
18.85	+.0002	2	2	5	5	6
19.10	0	+.0001	+.0001	+.0004	+.0004	+.0004

Land No.1 at 12 o'clock (Muzzle)

* 8.20 GAS PORT

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the centering cylinder and bullet seat. There is a small area of chipped chrome plating adjacent to the non-driving side of the land, located at the ten o'clock position between the origin and commencement of rifling. Intermittent light to moderate tool chatter marks throughout the bore, located between the seven and ten o'clock (CW) positions. Intermittent longitudinal tool drag marks on the lands, located between the gas port and the muzzle end of the barrel. Light intermittent pitting in the bore, located primarily between the gas port and the muzzle end of the barrel. Light copper and carbon deposits throughout the bore. Light erosion at the forward edge of the gas port.

STRIP Form 196 17 Jun 64 (Part I)

: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 12

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	L .001	.001	0	0	.0010
3.00	0	.001	0	0	.0010
4.00	R .001	.001	0	0	.0010
5.00	R .001	0	0	0	.0000
6.00	0	.001	0	0	.0010
7.00	R .001	.001	0	0	.0010
8.00	R .001	0	0	0	.0000
9.00	R .002	.001	+.001	.001	.0014
10.00	R .001	.001	+.002	.003	.0032
11.00	R .001	0	+.002	0	.0000
12.00	R .001	0	+.001	.001	.0010
13.00	R .001	0	+.002	.001	.0010
14.00	R .001	0	+.001	.001	.0010
15.00	R .001	0	+.001	0	.0000
16.00	0	.001	+.001	0	.0010
17.00	R .001	.001	+.001	0	.0010
18.00	0	.001	+.001	0	.0010
18.50	0	0	0	.001	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	
MANUFACTURER	PROOF OFFICER FRANK MILLER W.O. 330-325774-30
MODEL	M16A2 (Enhanced) S/N 6107949
NUMBER OF ROUNDS	B.F. APG
NUMBER	13
FIRING STATUS (Check One)	BEFORE ✓ AFTER
DATE OF GAUGING	25 JUNE 85
5.56 MM Barrel	

Dist. (Inches) From Face of Flash Suppressor | Gage Meas. Indicated in .0001 of an inch

	LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	-.0002	-.0001	-.0002	+.0001	.0000	+.0001
2.00	+.0001	+.0001	0	1	+.0001	1
3.00	3	3	+.0003	2	2	2
4.00	4	3	3	3	3	2
5.00	3	4	3	3	3	3
6.00	5	3	4	4	3	3
7.00	4	3	4	3	2	3
8.00 *	5	4	4	4	* 3	3
9.00	5	4	4	3	+.0004	1
10.00	6	4	6	4	0	4
11.00	1	5	6	3	+.0004	4
12.00	5	6	1	4	4	2
13.00	6	1	5	4	2	3
14.00	1	5	5	3	3	3
15.00	5	5	1	3	3	3
16.00	5	2	5	3	3	3
17.00	3	3	4	4	2	3
18.00	3	2	2	1	1	2
18.35	2	3	1	+.0002	1	2
18.85	+.0002	2	2	0000	+.0001	1
19.10	.0000	+.0001	+.0001	-.0001	-.0001	+.0001

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT, READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: There is a build-up of copper on the chamber wall approximately .40 of an inch in length and .10 of an inch in width at the ten o'clock position and starting .70 of an inch from the rear face of the barrel. Light circumferential tool marks on the centering cylinder and bullet seat. Light to moderate tool chatter marks throughout the bore, located between the eight and eleven o'clock positions. Intermittent light longitudinal tool drag marks on the lands throughout the bore. Light erosion and chipped chrome plating at the forward edge of the gas port. Light pitting in the bore, primarily between the gas port and the muzzle end of the barrel. Light copper and carbon deposits throughout the bore.

STRICOM Form 106 17 Jun 84 (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 13

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	L .001	.001	-.002	.002	.0022
4.00	0	.001	-.003	.001	.0014
5.00	0	0	-.004	.001	.0010
6.00	0	0	-.005	.001	.0010
7.00	0	0	-.005	0	.0000
8.00	0	0	-.005	0	.0000
9.00	0	0	-.004	.001	.0010
10.00	L .001	.001	-.004	.0	.0010
11.00	0	.001	-.003	.001	.0014
12.00	0	0	-.003	0	.0000
13.00	0	0	-.003	0	.0000
14.00	0	0	-.003	0	.0000
15.00	0	0	-.002	.001	.0010
16.00	R .001	.001	-.001	.001	.0014
17.00	L .001	.002	-.001	0	.0020
18.00	L .001	0	0	.001	.0010
18.50	0	.001	0	0	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0050

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	MANUFACTURER	MODEL	NUMBER	FIRING STATUS (Check One) BEFORE	FIRING STATUS (Check One) AFTER	NUMBER OF ROUNDS	PROOF OFFICER
	(Enhanced)	M16A2	14			B.F. APG	W.O. 330-32574-30 FRANK MILLER
		S/N 6108922					

5.56 MM Barrel	DATE OF GAUGING
	25 JUNE 85

Dist. (Inches) From Face of Flash Suppressor | Gage Meas. Indicated in .0001 of an Inch

	LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0007	+.0004	+.0006	+.0007	+.0006	+.0007
2.00	4	4	4	6	5	6
3.00	6	5	7	8	8	8
4.00	7	7	7	8	8	8
5.00	7	8	7	9	9	9
6.00	8	7	6	9	9	9
7.00	6	5	6	8	8	8
8.00	9	8	9	* 10	8	9
9.00	8	8	8	9	10	10
10.00	10	8	10	11	9	11
11.00	9	8	10	8	11	11
12.00	6	9	9	7	10	6
13.00	9	9	4	10	7	9
14.00	8	3	8	8	8	9
15.00	4	7	7	6	8	8
16.00	7	7	6	8	8	6
17.00	6	6	6	7	6	8
18.00	4	5	4	7	7	6
18.35	4	5	3	7	6	6
18.85	3	+.0002	+.0001	5	4	5
19.10	+.0001	.0000	-.0001	+.0003	+.0002	+.0003

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT, READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: Light circumferential tool marks on the centering cylinder and bullet seat. Intermittent light longitudinal tool drag marks on the lands throughout the bore. Light erosion at the forward edge of the gas port. Light intermittent pitting in the bore, primarily forward of the gas port. Light copper and carbon deposits throughout the bore.

STRIKER Form 194 17 Jun 64 (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 14

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	0	0	-.001	.001	.0010
4.00	0	0	-.001	0	.0000
5.00	0	0	-.001	0	.0000
6.00	0	0	-.003	.002	.0020
7.00	L .002	.002	-.003	0	.0020
8.00	L .001	.001	-.002	.001	.0014
9.00	L .001	0	-.002	.0	.0000
10.00	L .001	0	-.003	.001	.0010
11.00	L .001	0	-.002	.001	.0010
12.00	.0	.001	-.001	.001	.0014
13.00	0	0	0	.001	.0010
14.00	R .001	.001	0	0	.0010
15.00	R .001	0	-.001	.001	.0010
16.00	R .001	0	-.001	0	.0000
17.00	0	.001	0	.001	.0014
18.00	0	0	0	0	.0000
18.50	0	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0036

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

- CASTING NUMBER: —
- MANUFACTURER: —
- PROOF OFFICER: FRANK MILLER
- W.O. 330-32574-30
- MODEL: M16A2 (Enhanced)
- S/N 6108943
- NUMBER OF ROUNDS: B.F. APG
- NUMBER: 15
- FIRING STATUS (Check One): BEFORE ✓ AFTER
- 5.56 MM Barrel
- DATE OF GAUGING: 24 June 85

5.56 MM Barrel

Dist. (Inches) From Face of Flash Suppressor	Gage Meas. indicated in .0001 of an inch: LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0005	+.0005	+.0007	+.0007	+.0006	+.0007
2.00	1	2	1	3	3	2
3.00	3	3	3	5	5	5
4.00	5	3	4	6	7	5
5.00	4	4	4	7	7	6
6.00	5	5	4	6	7	7
7.00	5	4	5	6	8	7
8.00	7	7	4	* 8	6	7
9.00	7	6	7	7	8	7
10.00	10	10	9	9	9	10
11.00	10	7	9	8	9	9
12.00	5	8	9	8	8	7
13.00	8	8	3	7	7	7
14.00	7	5	8	7	6	7
15.00	4	7	5	4	7	8
16.00	6	4	5	6	7	4
17.00	4	6	4	5	4	7
18.00	5	2	3	5	6	5
18.35	4	3	3	4	4	5
18.85	+.0001	+.0002	+.0002	3	4	5
19.10	-.0002	-.0001	.0000	+.0002	+.0002	+.0003

Land No.1 at 12 o'clock (Muzzle)

* 8.20 GAS PORT

Twist of Rifling: 1/7

Borescope Remarks: Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Intermittent light longitudinal tool drag marks on the lands throughout the bore. Light pitting throughout the bore; pitting is more heavily concentrated toward the muzzle end of the barrel. Intermittent light to heavy tool chatter marks throughout the bore, located between the nine and twelve o'clock (CW) positions. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

R: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 15

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	0	0	-.002	.002	.0020
4.00	0	0	-.002	0	.0000
5.00	0	0	-.003	.001	.0010
6.00	R.001	.001	-.003	0	.0010
7.00	R.002	.001	-.004	.001	.0014
8.00	0	.002	-.005	.001	.0022
9.00	R.001	.001	-.004	.001	.0014
10.00	0	.001	-.003	.001	.0014
11.00	0	0	-.001	.002	.0020
12.00	R.001	.001	-.001	0	.0010
13.00	R.001	0	-.001	0	.0000
14.00	R.001	0	0	.001	.0010
15.00	0	.001	+.001	.001	.0014
16.00	R.001	.001	-.002	.003	.0032
17.00	R.001	0	0	.002	.0020
18.00	0	.001	+.001	.001	.0014
18.50	0	0	0	.001	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0050

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	X
MANUFACTURER	(Enhanced)
MODEL	M16 A2
NUMBER	16
	5.56 MM Barrel
PROOF OFFICER	FRANK MILLER
W.O.	330-325774-30
	S/N 6109021
NUMBER OF ROUNDS	B.F. APG
FIRING STATUS (Check one)	BEFORE ☐ AFTER ☐
DATE OF GAUGING	24 JUNE 85

Dists. (inches) from Face of Flash Suppressor — Bore Wear, indicated in .0001 of an inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0001	+.0003	+.0003	+.0002	+.0003	+.0002
2.00	4	7	2	7	5	6
3.00	4	5	5	6	7	5
4.00	5	6	5	6	6	6
5.00	6	6	5	7	6	5
6.00	6	6	5	6	6	5
7.00	6	7	6	6	6	6
8.00	7	7	5	* 7	7	* 8
9.00	8	7	7	7	7	7
10.00	8	8	9	8	8	8
11.00	8	10	9	7	9	6
12.00	5	8	7	7	7	7
13.00	7	7	2	6	2	5
14.00	6	3	6	3	6	3
15.00	1	7	6	5	6	5
16.00	7	6	1	5	5	5
17.00	5	3	6	5	3	6
18.00	5	6	5	4	6	4
18.35	4	5	4	5	6	5
18.85	4	4	4	5	5	5
19.10	+.0002	+.0002	+.0002	+.0003	+.0003	+.0003

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Intermittent light to heavy tool chatter marks throughout the bore, located between the ten and two o'clock positions. Light erosion at the forward edge of the gas port. Intermittent light longitudinal tool drag marks on the lands forward of the gas port. Light pitting throughout the bore; more heavily concentrated forward of the gas port. Light copper and carbon deposits throughout the bore.

STRICOM Form 196 17 Jun 64 (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 16

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.001	.001	.0010
3.00	R.001	.001	+.001	0	.0010
4.00	R .001	0	+.001	0	.0000
5.00	R.001	0	+.001	0	.0000
6.00	R. 001	0	+.002	.001	.0010
7.00	R .002	.001	+.003	.001	.0014
8.00	R .001	.001	+.002	.001	.0014
9.00	R. 001	0	+.003	.001	.0010
10.00	R .002	.001	+.003	0	.0010
11.00	R .002	0	+.004	.001	.0010
12.00	R. 002	0	+.003	.001	.0010
13.00	R .002	0	+.002	.001	.0010
14.00	R .001	.001	+.002	0	.0010
15.00	R .002	.001	+.002	0	.0010
16.00	R .002	0	+.002	0	.0000
17.00	R .001	.001	0	.002	.0022
18.00	R .001	0	0	0	.0000
18.50	0	.001	0	0	.0010
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0045

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM BARREL

CASTING NUMBER	X
MANUFACTURER	PROOF OFFICER F. MILLER W.O. 330-32574-30
MODEL	M16A2 (Enhanced) S/N 6109088
NUMBER OF ROUNDS	BF. AP16
NUMBER	17
FIRING STATUS (Check One)	X BEFORE / AFTER
DATE OF GAUGING	24 JUN 85
	5.56 MM Barrel

Dist. (Inches) From Face of Flash Suppressor — Gage Mean, Indicated in .0001 of an Inch

	LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0004	+.0003	+.0003	+.0007	+.0007	+.0007
2.00	3	0	1	5	3	5
3.00	3	+.0002	5	4	6	7
4.00	1	5	+.0003	5	8	4
5.00	5	3	0	8	5	6
6.00	+.0005	1	+.0004	7	5	9
7.00	0	3	5	5	6	7
8.00	+.0002	* 7	1	* 9	8	4
9.00	7	4	3	9	6	9
10.00	9	6	9	9	10	12
11.00	7	9	10	11	12	11
12.00	9	10	9	12	12	10
13.00	12	10	9	9	10	11
14.00	11	9	11	9	9	12
15.00	11	10	12	9	10	11
16.00	10	11	11	10	11	11
17.00	10	10	10	10	11	9
18.00	10	9	9	9	9	8
18.35	11	8	10	10	9	11
18.85	8	5	7	5	5	7
19.10	+.0010	+.0011	+.0013	+.0005	+.0007	+.0007

Land No.1 at 12 o'clock (Muzzle)

* 8.2 Gas Port

Twist of Rifling:

Borescope Remarks: There are several small blisters in the chrome plating located in the chamber at the three o'clock position and .40 of an inch from the rear face of the barrel. Light circumferential tool marks on the centering cylinder and bullet seat. Intermittent light longitudinal tool drag marks on the lands, forward of the gas port. The lands at the three o'clock position, located between 13.65 and 16.65 inches from the rear face of the barrel have deep longitudinal tool gouges (drag marks). Intermittent light to moderate tool chatter marks throughout the bore, located between the two and five o'clock positions. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

STRICOM Form 196 17 Jun 84 (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 17

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	R.001	.001	.001	.001	.0014
3.00	0	.001	.001	0	.0010
4.00	R.001	.001	.001	0	.0010
5.00	R.001	0	0	.001	.0010
6.00	0	.001	.001	.001	.0014
7.00	0	0	0	.001	.0010
8.00	R.001	.001	0	0	.0010
9.00	R.001	0	.001	.001	.0010
10.00	0	.001	.001	0	.0010
11.00	0	0	.001	0	.0000
12.00	R.001	.001	.001	0	.0010
13.00	R.001	0	.002	.001	.0010
14.00	0	.001	.002	0	.0010
15.00	R.001	.001	.001	.001	.0014
16.00	0	.001	.001	0	.0010
17.00	0	0	0	.001	.0010
18.00	R.001	.001	.001	.001	.0014
18.50	0	.001	0	.001	.0014

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	MANUFACTURER	PROOF OFFICER FRANK MILLER W.O. 330-33574-30
	S/N 6/09090	NUMBER OF ROUNDS B.F. APG
MODEL M16A2 (Enhanced)		
NUMBER 18	FIRING STATUS (Check One) BEFORE ✓ AFTER	
5.56 MM Barrel	DATE OF GAUGING 24 JUNE 95	

Dist. (Inches) From Face of Flash Suppressor | Gage Heads Indicated in .0001 of an Inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	.0000	0	-.0001	-.0001	-.0002	-.0001
2.00	0	-.0001	+.0001	-.0002	-.0001	-.0001
3.00	-.0001	+.0001	+.0002	+.0001	+.0002	0
4.00	+.0002	3	0	2	1	0
5.00	4	2	+.0002	2	2	+.0003
6.00	3	3	3	3	4	3
7.00	3	4	3	4	4	3
8.00	6	* 4	2	* 4	4	4
9.00	5	4	5	4	5	5
10.00	6	8	6	5	5	5
11.00	9	8	8	5	5	6
12.00	7	8	9	6	6	5
13.00	8	10	6	6	6	5
14.00	8	7	5	6	5	4
15.00	7	7	7	5	5	4
16.00	7	8	8	6	6	4
17.00	7	7	7	5	5	4
18.00	4	5	7	3	4	4
18.35	5	5	6	4	5	5
18.85	+.0002	4	4	2	4	3
19.10	-.0001	+.0003	+.0001	+.0001	+.0002	+.0001

Land No.1 at 12 o'clock (Muzzle)

* READING TAKEN @ 8.20 INCHES (GAS PORT)

Twist of Rifling:

Borescope Remarks: Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Intermittent light pitting throughout the bore. Intermittent light to heavy tool chatter marks throughout the bore. Located between the four and seven o'clock (CW) positions. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

STARGAGE Form 106 17 Jun (Part I)

R: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 18

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	L .001	.001	0	0	.0010
3.00	L .001	0	0	0	.0000
4.00	L .001	0	−.001	.001	.0010
5.00	L .002	.001	0	.001	.0014
6.00	L .001	.001	−.001	.001	.0014
7.00	L .002	.001	−.001	0	.0010
8.00	L .001	.001	−.002	.001	.0014
9.00	L .001	0	−.001	.001	.0010
10.00	L .001	0	−.001	0	.0000
11.00	L .001	0	0	.001	.0010
12.00	L .001	0	0	0	.0000
13.00	L .001	0	+.001	.001	.0010
14.00	L .001	0	0	.001	.0010
15.00	0	.001	0	0	.0010
16.00	0	0	+.001	.001	.0010
17.00	0	0	0	.001	.0010
18.00	0	0	0	0	.0000
18.50	0	0	0	0	.0000
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

CASTING NUMBER	X
MANUFACTURER	(Enhanced)
PROOF OFFICER	FRANK MILLER
W.O.	330-325774-30
MODEL	M16A2
NUMBER OF ROUNDS	S/N 6109093 B.F. APG
NUMBER	19
FIRING STATUS (Check One)	BEFORE ✓ AFTER
DATE OF GAUGING	24 June 85
	5.56 MM Barrel

Dist. (inches) from Face of Flash Suppressor | Bore Mean, indicated in .0001 of an inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0001	+.0001	.0000	+.0003	+.0005	+.0003
2.00	1	1	0	4	4	4
3.00	4	3	2	6	5	5
4.00	3	4	3	7	6	5
5.00	4	5	4	6	8	4
6.00	5	4	5	8	7	6
7.00	5	4	4	7	8	8
8.00	* 6	5	5	* 9	8	8
9.00	6	7	6	8	9	8
10.00	8	9	8	9	10	8
11.00	9	10	7	9	10	8
12.00	7	7	7	10	7	9
13.00	8	7	8	8	8	8
14.00	4	7	7	8	8	5
15.00	6	6	8	7	7	9
16.00	6	8	6	8	8	7
17.00	3	7	5	6	8	6
18.00	5	4	4	8	7	5
18.35	4	4	2	6	6	8
18.85	+.0002	+.0002	+.0003	5	5	5
19.10	.0000	.0000	.0000	+.0003	+.0003	+.0002

Land No.1 at 12 o'clock (Muzzle)

* READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: There is a small blister in the chrome plating at the ten o'clock position, located in the chamber .60 of an inch from the rear face of the barrel. Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Light to moderate tool chatter marks throughout the bore, located between the seven and eleven o'clock (CW) positions. Light erosion at the forward edge of the gas port. Intermittent light longitudinal tool drag marks on the lands throughout the bore. Light pitting in the bore, forward of the gas port. Light copper and carbon deposits throughout the bore. Chipped chrome plating on the driving side of the land at the four o'clock position, located at the muzzle end of the barrel.

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 19

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	R.001	.001	+.001	.001	.0014
3.00	0	.001	0	.001	.0014
4.00	L.001	.001	0	0	.0010
5.00	L.002	.001	+.001	.001	.0014
6.00	L.001	.001	+.002	.001	.0014
7.00	L.001	0	+.002	0	.0000
8.00	L.001	0	+.001	.001	.0010
9.00	L.001	0	+.002	.001	.0010
10.00	L.001	0	+.003	.001	.0010
11.00	L.002	.001	+.002	.001	.0014
12.00	0	.002	+.003	.001	.0022
13.00	L.001	.001	+.003	0	.0010
14.00	0	.001	+.003	0	.0010
15.00	L.001	.001	+.002	.001	.0014
16.00	0	.001	+.003	.001	.0014
17.00	L.001	.001	+.001	.002	.0022
18.00	L.001	0	+.001	0	.0000
18.50	0	.001	0	.001	.0014

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

TOTAL BEND
.0032

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

5.56 MM Barrel	Number	Model	Manufacturer	Casting Number
	20	M16A2 (Enhanced)		

S/N 6109097

Proof Officer: FRANK MILLER

W.O. 330-32574-30

Number of Rounds: BF APG

Firing Status (Check One): ✓ Before / After

Date of Gauging: 24 JUNE 85

Dist. (inches) From / Gage Meas. indicated in .0001 of an inch

Face of Flash Suppressor	LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0008	+.0010	+.0008	+.0008	+.0008	+.0008
2.00	5	4	5	4	9	3
3.00	6	6	7	5	5	5
4.00	6	7	6	6	5	5
5.00	6	8	7	6	7	5
6.00	7	8	7	7	5	5
7.00	6	6	7	4	5	5
8.00	* 8	7	5	6	3	6
9.00	7	5	7	* 7	6	6
10.00	7	9	10	5	7	9
11.00	9	10	6	7	7	6
12.00	8	6	9	7	4	7
13.00	6	7	8	7	6	7
14.00	5	7	7	4	5	2
15.00	7	7	4	5	4	6
16.00	6	2	6	5	4	4
17.00	3	5	4	5	3	3
18.00	4	3	+.0003	3	3	2
18.35	+.0002	+.0001	0	+.0001	+.0001	+.0001
18.85	-.0001	-.0001	0	-.0001	-.0001	-.0001
19.10	-.0003	-.0003	-.0002	-.0002	-.0003	-.0003

Land No.1 at 12 o'clock (Muzzle)

* READING TAKEN @ 8.00 INCHES

Twist of Rifling: 1 TURN IN 7 INCHES

Borescope Remarks: Light circumferential tool marks on the centering cylinder and bullet seat. Intermittent light tool gouges on centering cylinder just aft of the case clearance shoulder. Light pitting throughout the bore. Light to moderate tool chatter marks throughout the bore, located between the seven and ten o'clock positions. Intermittent light longitudinal tool drag marks on the lands throughout the bore. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

ST[illegible] Form 10[illegible] 17 Jun [illegible] (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 20

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	L.001	.001	0	0	.0010
4.00	L.001	0	0	0	.0000
5.00	L.001	0	0	0	.0000
6.00	L.002	.001	−.001	.001	.0014
7.00	L.002	0	−.001	0	.0000
8.00	L.001	.001	−.001	0	.0010
9.00	L.002	.001	−.001	0	.0010
10.00	L.001	.001	−.001	0	.0010
11.00	L.001	0	0	.001	.0010
12.00	L.002	.001	0	0	.0010
13.00	L.002	0	+.001	.001	.0010
14.00	L.002	0	+.001	0	.0000
15.00	L.001	.001	0	.001	.0014
16.00	0	.001	0	0	.0010
17.00	0	0	0	0	.0000
18.00	0	0	0	0	.0000
18.50	0	0	0	0	.0000
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

Dist. (Inches) from Face of Flash Suppressor	LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0011	+.0008	+.0008	+.0010	+.0011	+.0009
2.00	5	4	5	7	7	7
3.00	6	5	5	7	5	8
4.00	6	6	7	8	7	9
5.00	7	6	6	7	8	8
6.00	6	6	6	8	7	8
7.00	6	6	5	8	7	8
8.00	5	6	5	8	8	6
9.00	6	7	6	7	7	7
10.00	9	9	8	9	7	10
11.00	9	8	9	8	8	10
12.00	9	9	9	9	8	10
13.00	8	8	8	9	8	9
14.00	8	8	8	8	8	8
15.00	7	8	7	9	8	8
16.00	8	7	7	9	8	8
17.00	8	7	8	9	8	9
18.00	6	6	7	8	7	8
18.35	6	5	6	8	7	8
18.85	6	5	5	8	9	8
19.10	+.0004	+.0004	+.0003	+.0007	+.0007	+.0007

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: There is a small nick in the chamber at the nine o'clock position, located 0.30 of an inch from the rear face of the barrel. Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. The lands are slightly flattened at the commencement of rifling. Light copper and carbon deposits throughout the bore. Intermittent light to moderate pitting throughout the bore. Intermittent light tool drag marks on the lands throughout the bore. Light erosion at the forward edge of the gas port. This condition extends forward 0.30 of an inch into the adjacent land.

CASTING NUMBER: X

MANUFACTURER: PROOF OFFICER FRANK MILLER W.O. 330-325794-30

MODEL: M16A2 S/A

NUMBER OF ROUNDS B.F. APG

S/N G060868

NUMBER: 1A

FIRING STATUS (Check One): BEFORE ✓ AFTER

5.56 MM Barrel

DATE OF GAUGING: 3 JULY 85

STRICOM Form 194 17 Jun 64 (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 1A

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	L.001	.001	-.001	.001	.0014
4.00	L.001	0	-.001	0	.0000
5.00	0	.001	-.001	0	.0010
6.00	0	0	0	.001	.0010
7.00	L.002	.002	-.001	.001	.0022
8.00	L.002	0	-.001	0	.0000
9.00	L.001	.001	0	.001	.0014
10.00	L.003	.002	0	0	.0020
11.00	L.002	.001	0	0	.0010
12.00	L.002	0	+.002	.002	.0020
13.00	L.001	.001	0	.002	.0022
14.00	L.002	.001	0	0	.0010
15.00	L.001	.001	+.001	.001	.0014
16.00	0	.001	+.001	0	.0010
17.00	0	0	0	.001	.0010
18.00	0	0	0	0	.0000
18.50	0	0	0	0	.0000
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0030

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 M1 Barrel

CASTING NUMBER:

MANUFACTURER: PROOF OFFICER FRANK MILLER W.O. 330-325774-30

MODEL: M16A2 STD. S/N 606058 NUMBER OF ROUNDS B.F. APG

NUMBER: 2A FIRING STATUS (Check one) BEFORE 4 AFTER

5.56 M1 Barrel DATE OF GAUGING 5 JULY 85

Dist. (inches) From Face of Flash Suppressor	Gage Meas. indicated in .0001 of an inch LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
1.35	+.0006	+.0005	+.0005	+.0003	+.0005	+.0004
2.00	3	3	3	2	2	2
3.00	3	3	4	2	4	3
4.00	4	5	3	4	3	2
5.00	4	4	4	4	3	3
6.00	4	3	5	4	4	3
7.00	3	4	4	4	4	2
8.00	5	3	3	* 4	3	2
9.00	4	4	4	3	4	3
10.00	6	6	6	5	6	4
11.00	7	7	6	6	5	4
12.00	7	5	7	5	4	4
13.00	5	6	6	4	5	4
14.00	5	6	5	5	4	3
15.00	6	5	5	4	3	4
16.00	4	4	6	3	4	4
17.00	3	5	4	4	4	3
18.00	5	3	3	4	2	2
18.35	4	1	3	+.0002	1	2
18.85	2	1	3	0	+.0001	2
19.10	+.0001	+.0001	+.0003	-.0001	0	+.0001

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT, READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Light pitting throughout the bore. Intermittent light to moderate tool chatter marks throughout the bore, located primarily between the eleven and two o'clock (CW) positions. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore. Intermittent light tool drag marks on the lands throughout the bore.

STRICOM Form 10[illegible] 17 J[illegible] (Part I)

Test Record No. S-510-18

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 2A

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	0	0	-.002	.002	.0020
4.00	L.001	.001	-.002	0	.0010
5.00	L.001	0	-.004	.002	.0020
6.00	0	.001	-.006	.002	.0022
7.00	L.002	.002	-.007	.001	.0022
8.00	L.002	0	-.007	0	.0000
9.00	L.001	.001	-.006	.001	.0014
10.00	L.002	.001	-.006	0	.0010
11.00	L.002	0	-.006	0	.0000
12.00	L.001	.001	-.005	.001	.0014
13.00	L.001	0	-.005	0	.0000
14.00	L.001	0	-.004	.001	.0010
15.00	L.001	0	-.004	0	.0000
16.00	0	.001	-.004	0	.0010
17.00	L.001	.001	-.001	.003	.0032
18.00	0	.001	-.001	0	.0010
18.50	0	0	0	.001	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0073

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

Dist. (inches) from Face of Flash Suppressor	Gage Meas. indicated in .0001 of an inch — LANDS .2190" 1 - 4	LANDS .2190" 2 - 5	LANDS .2190" 3 - 6	GROOVES .2235 1 - 4	GROOVES .2235 2 - 5	GROOVES .2235 3 - 6
1.35	+.0007	+.0005	+.0004	+.0006	+.0007	+.0005
2.00	7	5	4	6	5	6
3.00	4	4	5	5	5	6
4.00	5	6	5	6	6	5
5.00	6	6	5	6	5	5
6.00	6	6	5	5	5	5
7.00	5	6	6	5	5	5
8.00	* 7	7	5	* 6	5	5
9.00	8	7	6	7	6	6
10.00	9	8	9	8	7	7
11.00	9	9	8	7	6	8
12.00	8	6	8	7	6	5
13.00	8	9	8	7	5	7
14.00	8	7	8	6	6	7
15.00	6	7	7	6	7	7
16.00	7	7	6	8	7	6
17.00	7	6	7	8	6	7
18.00	7	5	7	6	6	6
18.35	4	6	7	5	5	6
18.85	4	6	6	6	6	6
19.10	+.0005	+.0004	+.0004	+.0004	+.0004	+.0004

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT READING TAKEN AT 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: There are several small nicks on the chamber, located between the eight and eleven o'clock (CW) positions and 0.40 to 0.60 of an inch from the rear face of the barrel. Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. The lands at the commencement of rifling are flattened and chipped. Light erosion at the forward edge of the gas port. Light to moderate pitting in the bore, forward of the gas port. Light intermittent tool chatter marks throughout the bore, located between the six and nine o'clock (CW) positions. Light copper and carbon deposits throughout the bore.

CASTING NUMBER	
MANUFACTURER	PROOF OFFICER FRANK MILLER W.O. 330-32574-30
MODEL	M16A2 Std.
NUMBER	3A
5.56 MM Barrel	
	S/N 6064630
	NUMBER OF ROUNDS BF. APG
	FIRING STATUS (Check One) BEFORE ✓ AFTER
	DATE OF GAUGING 5 July 85

STRICOM Form 10[illegible] 17 Ju (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 3A

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	-.001	.001	.0010
3.00	L .001	.001	-.001	0	.0010
4.00	0	.001	-.001	0	.0010
5.00	R .001	.001	-.002	.001	.0014
6.00	R .001	0	-.002	0	.0000
7.00	R .001	0	-.003	.001	.0010
8.00	R .001	0	-.003	0	.0000
9.00	R .002	.001	-.003	0	.0010
10.00	R .001	.001	-.002	.001	.0014
11.00	R .001	0	-.003	.001	.0010
12.00	R .001	0	-.002	.001	.0010
13.00	R .002	.001	-.003	.001	.0014
14.00	R .001	.001	-.002	.001	.0014
15.00	R .001	0	-.001	.001	.0010
16.00	R .001	0	-.002	.001	.0010
17.00	0	.001	-.001	.001	.0014
18.00	0	0	-.001	0	.0000
18.50	0	0	0	.001	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0036

5.56 MM Barrel

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

CASTING NUMBER:

MANUFACTURER: PROOF OFFICER FRANK MILLER W.O. 330-82574-30

MODEL: M16A2 S/A. S/N 6075919

NUMBER OF ROUNDS: BF APG

NUMBER: 4A

FIRING STATUS (Check One): BEFORE ✓ AFTER

DATE OF GAUGING: 5 July 1985

5.56 MM Barrel

Dist. (Inches) From Face of Flash Suppressor | Gage Mean, Indicated in .0001 of an Inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	0	+.0001	+.0001	+.0003	+.0004	+.0002
2.00	-.0001	-.0001	-.0001	0	0	1
3.00	+.0001	+.0001	+.0001	+.0003	+.0004	3
4.00	2	2	1	4	3	3
5.00	2	2	2	4	3	3
6.00	2	3	2	4	4	3
7.00	2	2	2	4	3	4
8.00	5	4	2	* 4	4	5
9.00	3	3	3	4	5	4
10.00	6	6	5	7	7	7
11.00	7	7	7	7	7	8
12.00	7	7	8	7	7	8
13.00	7	8	6	7	7	8
14.00	6	7	7	8	8	8
15.00	7	7	6	8	8	8
16.00	7	7	7	8	7	7
17.00	7	7	6	8	6	7
18.00	6	7	7	7	6	7
18.35	5	5	5	5	5	6
18.85	4	5	4	5	5	5
19.10	+.0001	+.0003	+.0001	+.0003	+.0002	+.0003

Land No.1 at 12 o'clock (Muzzle)

* GAS PORT READING AT 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Intermittent light to moderate tool chatter marks throughout the bore, located between the three and six o'clock (CW) positions. Intermittent light pitting throughout the bore. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

ST[illegible] Form 19[illegible] 17 Jun 64 (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 4A

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	-.001	.001	.0010
3.00	0	0	0	.001	.0010
4.00	0	0	0	0	.0000
5.00	0	0	-.001	.001	.0010
6.00	L .001	.001	-.001	0	.0010
7.00	L .001	0	-.001	0	.0000
8.00	L .001	0	-.001	0	.0000
9.00	L .001	0	0	.001	.0010
10.00	L .001	0	0	0	.0000
11.00	L .001	0	+.001	.001	.0010
12.00	L .001	0	+.001	0	.0000
13.00	0	.001	0	.001	.0014
14.00	R .001	.001	0	0	.0010
15.00	L .001	.002	0	0	.0020
16.00	0	.001	+.001	.001	.0014
17.00	0	0	0	.001	.0010
18.00	0	0	0	0	.0000
18.50	0	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0014

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 Mil Barrel

CASTING NUMBER: X

MANUFACTURER: PROOF OFFICER FRANK MILLER W.O. 330-32574-30

MODEL: M16 A2 S/A

NUMBER: 5A

5.56 Mil Barrel

DATE OF GAUGING: 5 July 1985

S/N 6086189

NUMBER OF ROUNDS: BE APG

FIRING STATUS (Check One): BEFORE ✓ AFTER

Dist. (Inches) From Face of Flash Suppressor | Bore Meas. Indicated in .0001 of an Inch

	LANDS .2190"			GROOVES .2235		
	1 - 4	2 - 5	3 - 6	1 - 4	2 - 5	3 - 6
1.35	+.0006	+.0006	+.0005	+.0006	+.0006	+.0005
2.00	6	6	5	5	6	5
3.00	5	5	5	6	6	6
4.00	7	8	7	5	7	6
5.00	7	7	6	5	7	6
6.00	8	8	8	5	8	8
7.00	8	7	7	6	8	7
8.00	9	9	6	* 7	7	7
9.00	9	7	8	7	7	8
10.00	10	10	10	8	10	10
11.00	10	11	11	9	9	10
12.00	10	10	9	8	8	10
13.00	11	10	10	7	8	10
14.00	9	10	10	7	8	9
15.00	9	8	9	7	8	8
16.00	9	8	8	7	7	8
17.00	8	8	7	6	7	7
18.00	8	6	7	5	6	6
18.35	5	6	5	5	5	5
18.85	4	4	4	4	4	4
19.10	+.0003	+.0005	+.0005	+.0004	+.0004	+.0004

Land No.1 at 12 o'clock (Muzzle)

GAS PORT - READING TAKEN @ 8.20 INCHES

Twist of Rifling: 1/7

Borescope Remarks: There are two small nicks in the chamber, located at the eleven and twelve o'clock positions and 0.30 inch from the rear face of the barrel. Light circumferential tool marks on the chamber front slope, centering cylinder and bullet seat. Light to moderate pitting throughout the bore. Intermittent light tool chatter marks throughout the bore, located between the ten and twelve o'clock (CW) positions. Light erosion at the forward edge of the gas port. Light copper and carbon deposits throughout the bore.

Form 17 Jun (Part I)

FOR: FRANK MILLER
DATE: 17 JULY 85
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 5A

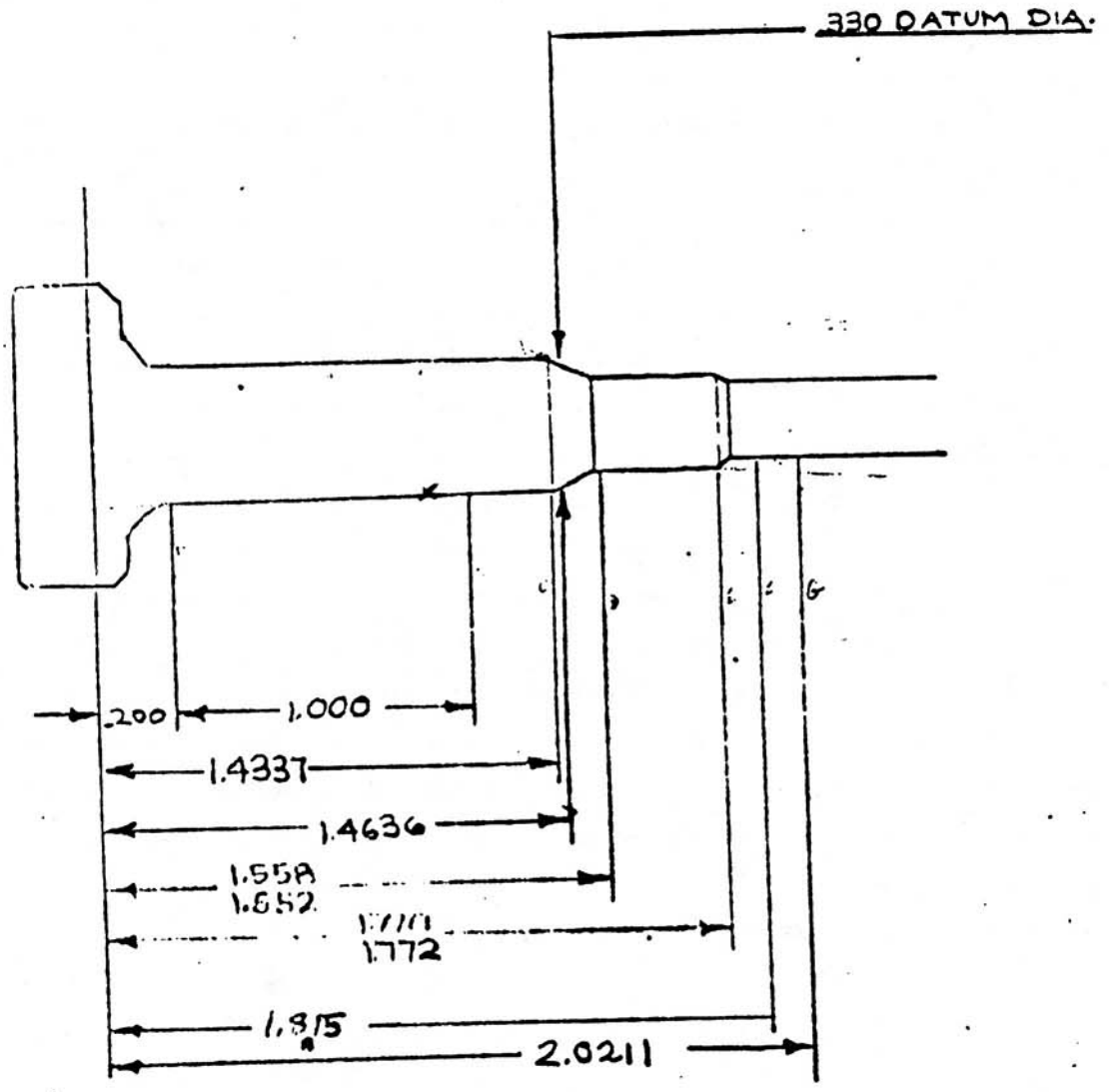
DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.001	.001	.0010
3.00	0	0	0	.001	.0010
4.00	L.001	.001	0	0	.0010
5.00	L.002	.001	-.001	.001	.0014
6.00	L.001	.001	-.002	.001	.0014
7.00	L.001	0	-.002	0	.0000
8.00	L.001	0	-.002	0	.0000
9.00	L.001	0	0	.002	.0020
10.00	L.002	.001	0	0	.0010
11.00	L.002	0	0	0	.0000
12.00	L.003	.001	+.001	.001	.0014
13.00	L.003	0	+.001	0	.0000
14.00	L.003	0	+.001	0	.0000
15.00	L.004	.001	+.001	0	.0010
16.00	L.005	.001	+.001	0	.0010
17.00	L.005	0	0	.001	.0010
18.00	L.006	.001	0	0	.0010
18.50	L.006	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0060

5.56 CHAMBER CAST MEASUREMENTS



5.56MM CHAMBER CAST MEASUREMENTS

DIST. (INS.) FROM NOMINAL BREECH FACE.

		BEFORE FIRE							
				1.558	1.778				
DIST.	.200	1.200	1.4337	1.552	1.772	1.815	2.0211	.200	
	A	B	*C	*D	*E	F	G	A1	
SPECS.	.3789	.3614	.3573	.257	.256	.2265	.220		
	.3769	.3594	.3553	.255	.254	.2245	.210		
BBL. No.									
#1		1.700	1.4334	1.5525	1.7778	1.815	2.0211	.210	DIST.
		.3600	.3557	.256	.254	.2265	.2225	.3779	DIA.
#2		1.200	1.4332	1.5518	1.777	1.815	2.0211	.230	DIST.
		.3608	.3573	.2580	.2556	.2303	.2234	.3789	DIA.
#3		1.200	1.4337	1.5521	1.7778	1.815	2.0211	.210	DIST.
		.3597	.3558	.2556	.2545	.2294	.2233	.3776	DIA
#4		1 200	1.4330	1.5523	1.7779	1.815	2.0211	.210	DIST
		.3595	.3560	.2567	.2544	.2263	.2227	.3784	DIA
#5		1.200	1.4334	1.5522	1.7780	1.815	2.0211	.220	DIST
		.3600	.3555	.2552	.2539	.2297	.2226	.3782	DIA
#6		1.200	1.4334	1.5507	1.7778	1.8150	2.0211	.210	DIST
		.3591	.3553	.2568	.2552	.2287	.2233	.3782	DIA
#7		1.200	1.4331	1.5518	1.7775	1.815	2.0211	.210	DIST
		.3597	.3557	.2552	.2543	.2298	.2228	.3786	DIA

NOTE: CAST MARKED AND MEASURED IN THE 12 O'CLOCK PLANE
*C, D & E ARE DIST. & DIA. TO SHARP CORNERS.
A1 IS THE DIST. WHERE THE DIA. FOR "A" FALLS.
THE POSITION OF THE NOMINAL BREECH FACE WAS DETERMINED BY LOCATING THE .330" DATUM DIA. ON THE FRONT CHAMBER SLOPE, THEN MEAS. A DISTANCE BACK 1.4636". ALL OTHER DIMENSIONS WERE IN REFERENCE TO THE NOMINAL BREECH FACE.

5.56MM CHAMBER CAST MEASUREMENTS

DIST. (INS.) FROM NOMINAL BREECH FACE.

		BEFORE FIRE							
				1.558	1.778				
DIST.	.200	1.200	1.4337	1.552	1.772	1.815	2.0211	.200	
	A	B	*C	*D	*E	F	G	A1	
SPECS.	.3789	.3614	.3573	.257	.256	.2265	.220		
	.3769	.3594	.3553	.255	.254	.2245	.210		
BBL. NO.									
#8		1.200	1.4337	1.5525	1.7775	1.815	2.0211	.210	DIST
		.3594	.3550	.2550	.2543	.2266	.222	.3782	DIA.
#9		1.200	1.4333	1.5517	1.7774	1.815	2.0211	.210	DIST
		.3598	.3553	.2562	.2544	.2297	.2231	.3784	DIA
#10		1.200	1.4336	1.5526	1.7776	1.815	2.0211	.210	DIST
		.3602	.3552	.2550	.2543	.2278	.223	.3787	DIA
#11		1.200	1.4332	1.5511	1.7742	1.815	2.0211	.220	DIST
		.3601	.3552	.256	.2552	.2297	.2236	.3785	DIA
#12		1.200	1.4328	1.5525	1.7772	1.815	2.0211	.210	DIST
		.3594	.3566	.2559	.2542	.2268	.223	.3780	DIA
13	.200	1.200	1.4327	1.5466	1.7745	1.815	2.0211		DIST
	.3757	.3595	.3557	.2568	.2549	.2284	.2226		DIA
14		1.200	1.4326	1.5501	1.7751	1.815	2.0211	.210	DIST
		.3597	.3551	.2566	.254	.2288	.2225	.3779	DIA

NOTE: CAST MARKED AND MEASURED IN THE 12 O'CLOCK PLANE
*C, D & E ARE DIST. & DIA. TO SHARP CORNERS.
A1 IS THE DIST. WHERE THE DIA. FOR "A" FALLS.
THE POSITION OF THE NOMINAL BREECH FACE WAS DETERMINED BY LOCATING THE .330" DATUM DIA. ON THE FRONT CHAMBER SLOPE, THEN MEAS. A DISTANCE BACK 1.4636". ALL OTHER DIMENSIONS WERE THEN REFERENCED TO THE NOMINAL BREECH FACE.

5.56MM CHAMBER CAST MEASUREMENTS

DIST. (INS.) FROM NOMINAL BREECH FACE.

		BEFORE FIRE							
				1.558	1.778				
DIST.	.200	1.200	1.4337	1.552	1.772	1.815	2.0211	.200	
	A	B	*C	*D	*E	F	G	A1	
SPECS.	.3789	.3614	.3573	.257	.256	.2265	.220		
	.3769	.3594	.3553	.255	.254	.2245	.210		
BBL NO.									
#15		1.200	1.4335	1.5518	1.7764	1.815	2.0211	.210	DIST
		.3594	.3554	.2557	.2530	.226	.2222	.3729	DIA
#16		1.200	1.4329	1.5521	1.7770	1.815	2.0211	.210	DIST
		360	.3553	.2551	.255	.2291	.2217	.3728	DIA
#17		1.200	1.4337	1.5521	1.7778	1.815	2.0211	.210	DIST
		.3595	.3554	.2566	.2547	.2293	.2234	.3775	DIA
#18		1.200	1.4332	1.5517	1.7777	1.815	2.0211	.220	DIST
		.3607	.3557	.2567	.2547	.230	.2233	.3779	DIA
#19		1.200	1.4331	1.5511	1.7756	1.815	2.0211	.210	DIST
		.3596	.3553	.2557	2539	.2286	.2231	.3782	DIA
#20		1.200	1.4335	1.5534	1.7774	1.815	2.0211	.210	DIST
		.3594	.3552	.255	.2541	.2296	.2224	.3725	DIA
#1A		1.200	1.4331	1.5525	1.7771	1.815	2.0211	.210	DIST
		.3599	.3553	.2561	.2536	.2296	.2235	.378	DIA

NOTE: CAST MARKED AND MEASURED IN THE 12 O'CLOCK PLANE

*C, D & E ARE DIST. & DIA. TO SHARP CORNERS.

A1 IS THE DIST. WHERE THE DIA. FOR "A" FALLS.

THE POSITION OF THE NOMINAL BREECH FACE WAS DETERMINED BY LOCA[illegible] THE .330" DATUM DIA. ON THE FRONT CHAMBER SLOPE; THE[illegible] FACE BACK 1.4636". ALL OTHER DIMENSIONS WERE THEN RE[illegible] FROM T[illegible] MINAL BREECH FACE.

5.56MM CHAMBER CAST MEASUREMENTS

DIST. (INS.) FROM NOMINAL BREECH FACE.

		BEFORE FIRE							
				1.558	1.778				
DIST.	.200	1.200	1.4337	1.552	1.772	1.815	2.0211	.200	
	A	B	*C	*D	*E	F	G	A1	
SPECS.	.3789	.3614	.3573	.257	.256	.2265	.220		
	.3769	.3594	.3553	.255	.254	.2245	.210		
BBL. NO.									
#2A		1.200	1.4327	1.5508	1.7754	1.815	2.0211	.210	DIST.
		.3599	.3557	.2556	.2551	.2291	.2222	.3786	DIA
#3A		1.200	1.4331	1.5519	1.7764	1.815	2.0211	.210	DIST.
		.3598	.3557	.2567	.2555	.2285	.2232	.3780	DIA.
#4A		1.200	1.4331	1.552	1.7765	1.815	2.0211	.210	DIST.
		.3595	.356	.2559	.2548	.2262	.221	.3774	DIA
#5A		1.200	1.4327	1.5504	1.7766	1.815	2.0211	.210	DIST.
		.3596	.3558	.2565	.2546	.2301	.2228	.3789	DIA

NOTE: CAST MARKED AND MEASURED IN THE 12 O'CLOCK PLANE

*C, D & E ARE DIST. & DIA. TO SHARP CORNERS.

A1 IS THE DIST. WHERE THE DIA. FOR "A" FALLS.

THE POSITION OF THE NOMINAL BREECH FACE WAS DETERMINED BY LOC[illegible] OF THE .330" DATUM DIA. ON THE FRONT CHAMBER SLOPE; THEN A DISTANCE BACK 1.4636". ALL OTHER DIMENSIONS WERE THEN MEASURED FROM THE NOMINAL BREECH FACE.

ENGINEERING DIRECTORATE
PHYSICAL TEST DIVISION
MATERIALS BRANCH
DATA REPORT NO. 86-MM-15

STECS-EN-PM

DATES OF TEST 14 Aug 85

Title M16A2 5.56-MM Barrel Measurements

TECOM Project Title M16A2 Rifle Enhancement Program

TECOM Project No. 2-WE-600-016-029 W.O. No. 330-32574-30

Conducted For Mr. Frank Miller, Small Arms Systems Branch, Armament Systems Dir.

References None

INTRODUCTION:

The Small Arms Systems Branch requested specific measurements of 5.56-mm barrels.

RESULTS:

See Enclosure I for data on the M16A2 5.56-mm barrel measurements.

1 Enclosure

SUBMITTED BY:

Richard Swann
RICHARD SWANN
Materials Branch

REVIEWED BY:

C. R. KLARICH
Chief,
Materials Branch

APPROVED BY:

K. A. JONES, JR.
Chief,
Physical Test Divsion

MULTIPLE STARGAGE MEASUREMENT & INSPECTION DATA FORM

5.56 MM Barrel

NUMBER	MODEL	MANUFACTURER	CASTING NUMBER
3	M16A2		

DATE OF GAUGING	FIRING STATUS (Check One)	NUMBER OF ROUNDS	PROOF OFFICER
1 AUGUST 85	BEFORE: / AFTER: ✓	478	FRANK MILLER

W.O. 330 - 32574 - 30

Dist. (Inches) From Face of Flash Suppressor	LANDS .2190" 1 - 4	2 - 5	3 - 6	GROOVES .2235 1 - 4	2 - 5	3 - 6
			Gage ... Stated in .0001 of an inch			
1.35	+.0002	+.0005	+.0003	+.0004	+.0004	+.0004
2.00	6	7	7	11	18	14
3.00	*	*	*	30	30	30
4.00	5	3	5	6	5	5
5.00	4	4	4	5	5	6
6.00	6	7	6	7	7	7
7.00	6	5	5	7	6	6
8.00	6	7	6	8	6	6
9.00	6	5	6	6	6	7
10.00	7	10	8	8	9	8
11.00	10	5	10	8	8	8
12.00	4	8	4	7	8	.6
13.00	8	7	7	8	6	7
14.00	7	5	7	6	7	8
15.00	7	7	8	8	7	6
16.00	5	6	6	7	6	8
17.00	5	7	6	8	7	7
18.00	5	5	6	8	7	8
18.35	5	3	5	7	6	7
18.85	4	3	4	4	5	5
19.10	+.0005	+.0004	+.0005	+.0012	+.0014	+.0013

Land No.1 at 12 o'clock (Muzzle)

Twist of Rifling:

Borescope Remarks: The lands are flattened and chipped starting at the commencement of rifling and ending 3.00 inches from the rear face of the barrel (RFB). Light erosion at the forward edge of the gas port. The barrel is damaged from obstruction test, located between 18.20 and 19.25 inches from the RFB. The barrel is visually bulged out at 18.60 inches from the RFB with stress cracks extending longitudinall in both the forward and aft directions. The largest and heaviest concentration of stress cracks are located 18.90 inches from the RFB.

STEAP FG Form 106 17 Jun 64 (Part I)

Test Record No. S-510-18

: FRANK MILLER
E: 1 AUGUST 1985
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 2A (AFTER TEST)

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.002	.002	.0020
3.00	L.001	.001	+.002	0	.0010
4.00	L.001	0	0	.002	.0020
5.00	L.001	0	-.002	.002	.0020
6.00	L.001	0	-.003	.001	.0010
7.00	L.002	.001	-.004	.001	.0014
8.00	L.002	0	-.004	0	.0000
9.00	L.003	.001	-.003	.001	.0014
10.00	L.003	0	-.003	0	.0000
11.00	L.003	0	-.003	0	.0000
12.00	L.003	0	-.003	0	.0000
13.00	L.002	.001	-.002	.001	.0014
14.00	0	.002	-.002	0	.0020
15.00	L.002	.002	-.001	.001	.0022
16.00	L.001	.001	-.001	0	.0010
17.00	0	.001	0	.001	.0014
18.00	0	0	0	0	.0000
18.50	0	0	0	0	.0000

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0045

: FRANK MILLER
DATE: 1 AUGUST 1985
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 2 (AFTER TEST)

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	0	0	.0000
3.00	0	0	0	0	.0000
4.00	0	0	- .001	.001	.0010
5.00	L .002	.002	- .001	0	.0020
6.00	L .002	0	- .001	0	.0000
7.00	L .001	.001	- .001	0	.0010
8.00	L .002	.001	- .001	0	.0010
9.00	L .001	.001	- .001	0	.0010
10.00	L .001	0	0	.001	.0010
11.00	L .001	0	- .001	.001	.0010
12.00	L .001	0	+ .001	.002	.0020
13.00	0	.001	0	.001	.0014
14.00	0	0	+ .001	.001	.0010
15.00	L .002	.002	+ .001	0	.0020
16.00	L .001	.001	+ .002	.001	.0014
17.00	0	.001	+ .001	.001	.0014
18.00	0	0	+ .001	0	.0000
18.50	0	0	0	.001	.0010
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

FRANK MILLER
: 1 AUGUST 1985
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 7 (AFTER TEST)

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	L.001	.001	+ .001	.001	.0014
3.00	0	.001	+ .001	0	.0010
4.00	0	0	+ .001	0	.0000
5.00	0	0	0	.001	.0010
6.00	0	0	- .002	.002	.0020
7.00	0	0	- .002	0	.0000
8.00	0	0	- .001	.001	.0010
9.00	0	0	- .001	0	.0000
10.00	R .001	.001	- .001	0	.0010
11.00	R .001	0	- .001	0	.0000
12.00	R .001	0	- .002	.001	.0010
13.00	R .001	0	- .001	.001	.0010
14.00	R .001	0	- .001	0	.0000
15.00	0	.001	0	.001	.0014
16.00	R .001	.001	- .001	.001	.0014
17.00	R .001	0	0	.001	.0010
18.00	0	.001	- .001	.001	.0014
18.50	0	0	0	.001	.0010
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0022

FRANK MILLER
DATE: 1 AUGUST 1985
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 12 (AFTER TEST)

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.001	.001	.0010
3.00	0	0	+.002	.001	.0010
4.00	R.001	.001	+.001	.001	.0014
5.00	R.001	0	+.001	0	.0000
6.00	R.003	.002	+.001	0	.0020
7.00	R.002	.001	0	.001	.0014
8.00	R.001	.001	0	0	.0010
9.00	R.003	.002	+.001	.001	.0022
10.00	R.002	.001	+.002	.001	.0014
11.00	R.003	.001	+.002	0	.0010
12.00	R.002	.001	+.002	0	.0010
13.00	R.003	.001	+.002	0	.0010
14.00	R.002	.001	+.001	.001	.0014
15.00	R.001	.001	0	.001	.0014
16.00	0	.001	0	0	.0010
17.00	0	0	0	0	.0000
18.00	L.001	.001	0	0	.0010
18.50	0	.001	0	0	.0010

NOTE: ALL MEASUREMENTS GIVEN IN INCHES

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0036

OR: FRANK MILLER
DATE: 1 AUGUST 1985
W.O. 330-32574-30

BORE STRAIGHTNESS
M16A2 5.56-MM

BARREL NO. 17 (AFTER TEST)

DIST. FROM FACE OF FLASH SUPPRESSOR	LEFT OR RIGHT	CHANGE PER INCREMENT	UP OR DOWN	CHANGE PER INCREMENT	TRUE BEND
1.20	0		0		
2.00	0	0	+.001	.001	.0010
3.00	0	0	0	.001	.0010
4.00	0	0	0	0	.0000
5.00	L.001	.001	0	0	.0010
6.00	0	.001	0	0	.0010
7.00	L.001	.001	0	0	.0010
8.00	0	.001	-.001	.001	.0014
9.00	L.001	.001	0	.001	.0014
10.00	L.001	0	-.001	.001	.0010
11.00	0	.001	-.002	.001	.0014
12.00	0	0	-.002	0	.0000
13.00	0	0	-.001	.001	.0010
14.00	0	0	0	.001	.0010
15.00	0	0	-.001	.001	.0010
16.00	0	0	-.001	0	0000
17.00	0	0	-.001	0	.0000
18.00	L.001	.001	-.001	0	.0010
18.50	0	.001	0	.001	.0014
NOTE: ALL MEASUREMENTS GIVEN IN INCHES					

NOTE: RIGHT AND LEFT READINGS ARE AS VIEWED FROM THE RECIEVER END OF BARREL.

TOTAL BEND
.0020

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ACCURACY AND DISPERSION DATA

These data are presented in two groupings: Initial pretest firing, and after-test firing. The standard M16A2 rifle is listed as M16A2; the Enhanced M16A2 rifles are listed as M16A2E. The five-target summaries are listed in the order fired for each rifle (i.e., targets 1 to 5 or 6 to 10). Individual shot coordinate data are also provided. Headings for the data are as follows:

HCI = Horizontal center of impact
VCI = Vertical center of impact
HSD = Horizontal standard deviation
VSD = Vertical standard deviation
EHS = Extreme horizontal spread
EVS = Extreme vertical spread
ES = Extreme spread
N = Number of shots
MHD = Mean horizontal dispersion
VHD = Mean vertical dispersion
MR = Mean radius
RSD = Radial standard deviation
COV = Covariance

Group I - Before Drop Test

SAAW Branch, MTD, APG, MD
TARGET SCORING SUMMARY
Standard Rifle No. 2A

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2	5.0	19.1	2.8	2.5	9.6	8.7	10.3	10
M16A2	3.2	19.2	2.8	2.3	9.9	6.4	11.4	10
M16A2	4.6	18.5	1.8	2.7	5.8	9.2	9.5	10
M16A2	5.7	19.6	4.3	3.6	13.8	9.7	14.7	10
M16A2	5.8	18.2	2.3	2.1	9.0	6.2	9.8	10
MEAN	4.9	18.9	2.8	2.6	9.7	8.0	11.1	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2	2.1	1.6	3.0	3.7	-2.6	10
M16A2	2.1	2.0	3.0	3.6	2.2	10
M16A2	1.5	2.1	2.8	3.2	-0.2	10
M16A2	3.5	3.0	5.0	5.7	-1.7	10
M16A2	1.5	1.8	2.6	3.1	2.7	10
MEAN	2.1	2.1	3.3	3.9	0.1	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2	1.96	7.52	1.09	0.98	3.79	3.44	4.06	10
M16A2	1.24	7.57	1.09	0.91	3.91	2.50	4.49	10
M16A2	1.81	7.26	0.71	1.06	2.29	3.63	3.73	10
M16A2	2.24	7.71	1.71	1.42	5.45	3.81	5.79	10
M16A2	2.30	7.17	0.91	0.84	3.56	2.44	3.87	10
MEAN	1.91	7.45	1.10	1.04	3.80	3.16	4.39	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2	0.82	0.64	1.19	1.47	-0.40	10
M16A2	0.82	0.77	1.19	1.42	0.34	10
M16A2	0.58	0.81	1.10	1.28	-0.03	10
M16A2	1.39	1.18	1.96	2.22	-0.27	10
M16A2	0.59	0.70	1.03	1.24	0.42	10
MEAN	0.84	0.82	1.29	1.53	0.01	

* Covariance in square in.

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY
Enhanced Rifle No. 2

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	7.5	21.7	2.6	3.5	8.8	11.9	13.9	10
M16A2E	6.9	23.8	2.3	2.7	6.9	9.5	9.5	10
M16A2E	6.1	20.5	2.9	1.8	8.2	5.0	8.8	10
M16A2E	6.2	19.8	2.5	1.6	6.7	4.5	6.8	10
M16A2E	8.5	21.0	2.4	1.8	7.9	5.8	8.6	10
MEAN	7.1	21.3	2.5	2.3	7.7	7.3	9.5	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	1.9	2.5	3.4	4.4	5.6	10
M16A2E	1.8	2.1	3.1	3.5	-1.5	10
M16A2E	2.2	1.5	2.9	3.4	-2.1	10
M16A2E	2.1	1.3	2.6	2.9	0.2	10
M16A2E	1.9	1.3	2.5	3.0	-1.1	10
MEAN	2.0	1.7	2.9	3.4	0.2	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	2.97	8.55	1.04	1.37	3.45	4.69	5.46	10
M16A2E	2.71	9.35	0.89	1.06	2.72	3.73	3.73	10
M16A2E	2.40	8.07	1.13	0.71	3.22	1.98	3.46	10
M16A2E	2.45	7.78	0.97	0.61	2.65	1.77	2.66	10
M16A2E	3.37	8.26	0.95	0.70	3.10	2.27	3.37	10
MEAN	2.78	8.40	0.99	0.89	3.03	2.89	3.74	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.75	0.99	1.33	1.72	0.87	10
M16A2E	0.69	0.81	1.23	1.39	-0.23	10
M16A2E	0.86	0.58	1.13	1.34	-0.32	10
M16A2E	0.83	0.50	1.02	1.15	0.03	10
M16A2E	0.74	0.52	0.98	1.18	-0.18	10
MEAN	0.77	0.68	1.14	1.35	0.03	

* Covariance in square in.

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY
Enhanced Rifle No. 7 - Target 1 to 5 - Carrying Handle Rear Sight

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-3.0	18.5	1.8	3.0	6.1	11.0	11.8	10
M16A2E	-1.2	18.9	2.8	2.6	7.9	9.1	9.8	10
M16A2E	-0.8	17.9	2.1	1.5	6.9	4.2	7.1	10
M16A2E	-0.9	16.5	2.6	2.7	8.2	8.1	9.7	10
M16A2E	0.1	16.9	2.1	1.6	6.7	4.9	6.8	10
MEAN	-1.1	17.7	2.3	2.3	7.2	7.5	9.1	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	1.4	1.8	2.6	3.5	2.5	10
M16A2E	2.2	2.0	3.3	3.8	0.3	10
M16A2E	1.6	1.2	2.2	2.6	0.2	10
M16A2E	2.0	2.1	3.3	3.7	-2.0	10
M16A2E	1.6	1.3	2.3	2.7	0.1	10
MEAN	1.7	1.7	2.8	3.2	0.2	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-1.17	7.27	0.73	1.16	2.42	4.32	4.66	10
M16A2E	-0.47	7.45	1.09	1.02	3.12	3.58	3.88	10
M16A2E	-0.30	7.03	0.82	0.58	2.73	1.67	2.80	10
M16A2E	-0.34	6.48	1.01	1.07	3.23	3.20	3.83	10
M16A2E	0.05	6.63	0.84	0.64	2.65	1.92	2.69	10
MEAN	-0.45	6.97	0.90	0.89	2.83	2.94	3.57	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.54	0.72	1.01	1.37	0.39	10
M16A2E	0.85	0.77	1.32	1.49	0.04	10
M16A2E	0.62	0.46	0.88	1.01	0.03	10
M16A2E	0.78	0.83	1.30	1.47	-0.31	10
M16A2E	0.64	0.52	0.92	1.06	0.02	10
MEAN	0.69	0.66	1.08	1.28	0.03	

* Covariance in square in.

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY
Enhanced Rifle No. 7 - Target 6 to 10 - Auxiliary Rear Sight

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	1.9	11.5	2.3	3.5	8.0	11.4	13.1	10
M16A2E	0.8	11.2	2.1	3.6	7.3	13.2	14.0	10
M16A2E	-3.4	14.1	3.4	2.1	10.7	6.4	11.0	10
M16A2E	-1.4	10.9	2.6	3.2	8.5	10.0	10.2	10
M16A2E	2.0	11.6	1.9	2.8	6.5	9.2	9.9	10
MEAN	-0.0	11.8	2.5	3.0	8.2	10.0	11.6	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	1.6	2.6	3.4	4.2	4.1	10
M16A2E	1.7	2.5	3.3	4.2	2.4	10
M16A2E	2.5	1.6	3.3	4.0	-1.5	10
M16A2E	2.1	2.6	3.6	4.2	1.9	10
M16A2E	1.5	1.9	2.7	3.4	-2.5	10
MEAN	1.9	2.2	3.3	4.0	0.9	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	0.74	4.52	0.92	1.36	3.14	4.48	5.15	10
M16A2E	0.30	4.40	0.83	1.42	2.88	5.18	5.53	10
M16A2E	-1.34	5.56	1.35	0.82	4.22	2.53	4.32	10
M16A2E	-0.57	4.28	1.03	1.28	3.36	3.94	4.01	10
M16A2E	0.80	4.57	0.76	1.09	2.57	3.63	3.89	10
MEAN	-0.01	4.66	0.98	1.19	3.23	3.95	4.58	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.63	1.01	1.34	1.64	0.63	10
M16A2E	0.65	0.97	1.29	1.64	0.37	10
M16A2E	0.99	0.64	1.30	1.58	-0.24	10
M16A2E	0.84	1.04	1.44	1.64	0.29	10
M16A2E	0.57	0.75	1.08	1.33	-0.38	10
MEAN	0.74	0.88	1.29	1.57	0.14	

* Covariance in square in.

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY

Enhanced Rifle No. 12 - Target 1 to 5 - Carry Handle Rear Sight

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-3.7	24.8	2.4	3.6	7.2	10.4	11.3	10
M16A2E	-2.2	26.0	3.0	1.4	11.2	3.8	11.6	10
M16A2E	-3.3	24.9	2.7	3.2	9.8	11.4	11.5	10
M16A2E	-0.4	25.2	2.4	3.2	8.0	10.8	12.0	10
M16A2E	-3.7	24.0	2.3	2.7	7.0	7.2	8.2	10
MEAN	-2.7	25.0	2.6	2.8	8.6	8.7	10.9	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	2.0	3.1	3.8	4.4	-0.1	10
M16A2E	2.1	1.2	2.5	3.3	-0.8	10
M16A2E	2.0	2.2	3.4	4.2	2.3	10
M16A2E	2.0	2.6	3.4	4.0	0.4	10
M16A2E	1.9	2.3	3.2	3.6	0.8	10
MEAN	2.0	2.3	3.3	3.9	0.5	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-1.45	9.77	0.94	1.44	2.84	4.09	4.46	10
M16A2E	-0.86	10.22	1.17	0.55	4.41	1.51	4.55	10
M16A2E	-1.31	9.79	1.07	1.25	3.87	4.48	4.53	10
M16A2E	-0.15	9.93	0.95	1.26	3.13	4.26	4.71	10
M16A2E	-1.47	9.43	0.90	1.07	2.76	2.84	3.21	10
MEAN	-1.05	9.83	1.01	1.12	3.40	3.44	4.29	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.77	1.22	1.50	1.72	-0.02	10
M16A2E	0.81	0.49	0.99	1.29	-0.12	10
M16A2E	0.79	0.86	1.35	1.64	0.36	10
M16A2E	0.78	1.03	1.35	1.58	0.07	10
M16A2E	0.73	0.91	1.26	1.40	0.13	10
MEAN	0.78	0.90	1.29	1.53	0.08	

* Covariance in square in.

SAAW Branch, MTD, APG, MD
TARGET SCORING SUMMARY

Enhanced Rifle No. 12 - Target 6 to 12 - Night Vision Sight

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-5.1	3.1	3.2	3.7	8.6	12.3	14.2	10
M16A2E	-3.4	-1.2	3.4	3.0	9.7	8.7	11.3	10
M16A2E	-4.6	0.1	2.2	2.5	5.7	7.9	8.7	10
M16A2E	-4.5	-0.9	2.1	3.1	7.7	10.9	11.6	10
M16A2E	-5.3	-1.3	2.8	2.4	8.5	6.8	8.8	10
MEAN	-4.6	-0.0	2.7	2.9	8.1	9.3	10.9	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	2.8	2.9	4.4	4.9	-2.1	10
M16A2E	2.8	2.4	3.9	4.5	5.0	10
M16A2E	1.8	1.8	2.8	3.3	-0.1	10
M16A2E	1.5	2.4	3.1	3.7	-2.2	10
M16A2E	2.2	1.9	3.3	3.7	-1.8	10
MEAN	2.2	2.3	3.5	4.0	-0.3	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-1.99	1.23	1.27	1.47	3.40	4.83	5.60	10
M16A2E	-1.34	-0.48	1.34	1.17	3.84	3.44	4.44	10
M16A2E	-1.81	0.03	0.85	0.96	2.26	3.12	3.41	10
M16A2E	-1.78	-0.36	0.82	1.22	3.02	4.28	4.58	10
M16A2E	-2.10	-0.49	1.11	0.94	3.34	2.69	3.46	10
MEAN	-1.80	-0.01	1.08	1.15	3.17	3.67	4.30	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	1.10	1.16	1.73	1.94	-0.33	10
M16A2E	1.10	0.96	1.54	1.77	0.77	10
M16A2E	0.70	0.71	1.08	1.29	-0.02	10
M16A2E	0.59	0.96	1.21	1.47	-0.33	10
M16A2E	0.88	0.74	1.30	1.45	-0.29	10
MEAN	0.87	0.91	1.37	1.59	-0.04	

* Covariance in square in.

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY

Enhanced Rifle No. 17 with M203 Grenade Launcher Attached

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-12.0	32.8	1.9	2.8	6.6	8.5	10.2	10
M16A2E	-8.2	33.5	1.4	3.3	5.7	9.7	9.7	10
M16A2E	-10.9	30.1	1.7	2.7	5.3	8.5	8.5	10
M16A2E	-10.8	31.2	1.9	2.2	5.9	7.9	8.1	10
M16A2E	-10.6	29.1	3.4	2.3	10.7	7.5	12.2	10
MEAN	-10.5	31.3	2.1	2.7	6.8	8.4	9.7	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	1.5	2.1	2.8	3.4	-2.8	10
M16A2E	0.9	2.5	2.9	3.6	-1.6	10
M16A2E	1.3	2.0	2.7	3.2	0.4	10
M16A2E	1.6	1.7	2.5	2.9	2.3	10
M16A2E	2.7	1.8	3.4	4.1	-1.2	10
MEAN	1.6	2.0	2.9	3.5	-0.6	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-4.73	12.93	0.75	1.11	2.60	3.33	4.00	10
M16A2E	-3.23	13.20	0.55	1.30	2.26	3.81	3.81	10
M16A2E	-4.29	11.85	0.65	1.07	2.07	3.33	3.34	10
M16A2E	-4.27	12.26	0.75	0.88	2.31	3.12	3.21	10
M16A2E	-4.18	11.44	1.35	0.91	4.20	2.94	4.81	10
MEAN	-4.14	12.34	0.81	1.05	2.69	3.31	3.83	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.58	0.84	1.11	1.34	-0.43	10
M16A2E	0.34	0.98	1.13	1.42	-0.25	10
M16A2E	0.51	0.78	1.07	1.25	0.06	10
M16A2E	0.62	0.66	0.98	1.16	0.35	10
M16A2E	1.05	0.71	1.36	1.63	-0.19	10
MEAN	0.62	0.79	1.13	1.36	-0.09	

* Covariance in square in.

Group I - Before Drop Test

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

Gun 2a Tgt # 1

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	5.7	(2.24)	13.1	(5.16)
2	10.5	(4.12)	18.2	(7.16)
3	7.5	(2.94)	18.3	(7.20)
4	5.6	(2.21)	18.7	(7.37)
5	4.3	(1.71)	19.1	(7.52)
6	6.1	(2.39)	21.6	(8.51)
7	4.5	(1.78)	20.6	(8.09)
8	3.0	(1.17)	20.5	(8.06)
9	0.8	(0.32)	21.9	(8.60)
10	1.9	(0.77)	19.0	(7.50)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

Gun 2Atgt #2

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	4.8	(1.91)	15.8	(6.22)
2	5.2	(2.04)	18.5	(7.27)
3	9.3	(3.67)	22.2	(8.73)
4	3.7	(1.47)	21.8	(8.60)
5	1.5	(0.58)	21.7	(8.54)
6	1.6	(0.62)	20.8	(8.17)
7	2.6	(1.01)	19.5	(7.69)
8	2.1	(0.82)	17.5	(6.89)
9	1.4	(0.55)	18.0	(7.09)
10	-0.6	(-0.25)	16.6	(6.52)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

Gun 2A TGT #3

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	3.3	(1.28)	13.8	(5.43)
2	7.7	(3.02)	16.4	(6.46)
3	6.4	(2.50)	20.5	(8.07)
4	5.4	(2.14)	23.0	(9.07)
5	5.7	(2.23)	18.9	(7.43)
6	4.7	(1.86)	17.4	(6.85)
7	5.1	(2.00)	15.9	(6.25)

8	2.9	(1.13)	18.5	(7.30)
9	3.0	(1.20)	19.1	(7.54)
10	1.8	(0.72)	20.9	(8.24)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

GUN 2A TGT #4

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	5.0	(1.97)	14.9	(5.88)
2	8.0	(3.16)	15.5	(6.11)
3	10.5	(4.14)	16.9	(6.64)
4	7.8	(3.05)	17.0	(6.69)
5	14.1	(5.55)	24.6	(9.68)
6	4.0	(1.57)	18.6	(7.31)
7	0.2	(0.10)	19.6	(7.72)
8	3.1	(1.21)	21.1	(8.31)
9	1.9	(0.74)	23.1	(9.08)
10	2.3	(0.91)	24.6	(9.69)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

GUN 2A TGT #5

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	6.0	(2.38)	14.4	(5.69)
2	4.7	(1.85)	16.1	(6.34)
3	4.9	(1.94)	16.8	(6.60)
4	7.1	(2.78)	18.4	(7.24)
5	6.5	(2.58)	18.9	(7.46)
6	5.6	(2.22)	19.2	(7.56)
7	6.1	(2.40)	20.5	(8.08)
8	7.1	(2.79)	20.6	(8.12)
9	9.6	(3.80)	20.4	(8.05)
10	0.6	(0.24)	16.6	(6.52)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN #2 TGT # 1

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	6.6	(2.61)	18.2	(7.15)
2	4.4	(1.72)	19.3	(7.62)
3	6.4	(2.51)	20.0	(7.86)
4	7.2	(2.83)	20.0	(7.86)
5	8.1	(3.19)	19.3	(7.59)
6	10.7	(4.23)	21.0	(8.29)
7	7.7	(3.03)	22.9	(9.00)
8	5.7	(2.24)	22.2	(8.73)
9	5.4	(2.13)	24.3	(9.57)
10	13.1	(5.17)	30.1	(11.84)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 2

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	6.6	(2.59)	19.0	(7.49)
2	10.0	(3.92)	21.8	(8.59)
3	11.0	(4.35)	23.3	(9.18)
4	8.3	(3.25)	23.0	(9.04)
5	6.3	(2.50)	22.4	(8.83)
6	4.5	(1.76)	22.7	(8.93)
7	5.4	(2.12)	24.8	(9.75)
8	4.1	(1.63)	25.3	(9.95)
9	5.5	(2.18)	26.8	(10.56)
10	7.0	(2.77)	28.5	(11.22)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 3

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	9.3	(3.67)	18.3	(7.22)
2	8.6	(3.37)	18.8	(7.41)
3	9.7	(3.80)	20.4	(8.04)
4	7.7	(3.02)	19.7	(7.77)
5	5.9	(2.33)	20.0	(7.89)
6	5.6	(2.20)	22.9	(9.02)
7	5.2	(2.05)	23.4	(9.20)

8	1.7	(0.65)	22.6	(8.91)
9	1.5	(0.58)	19.1	(7.50)
10	5.8	(2.28)	19.7	(7.77)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 4

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	4.9	(1.91)	17.6	(6.93)
2	7.2	(2.85)	18.2	(7.16)
3	8.0	(3.17)	18.1	(7.14)
4	10.2	(4.03)	20.1	(7.90)
5	9.9	(3.89)	22.1	(8.71)
6	5.5	(2.15)	19.8	(7.78)
7	4.6	(1.83)	18.7	(7.38)
8	3.5	(1.38)	20.5	(8.06)
9	4.1	(1.60)	20.8	(8.18)
10	4.3	(1.68)	21.7	(8.56)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 5

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	13.3	(5.23)	17.5	(6.87)
2	10.0	(3.92)	20.2	(7.96)
3	10.2	(4.01)	22.7	(8.95)
4	10.1	(3.99)	23.2	(9.14)
5	8.6	(3.37)	22.5	(8.87)
6	8.2	(3.21)	20.8	(8.19)
7	7.1	(2.80)	18.9	(7.43)
8	6.8	(2.67)	21.3	(8.39)
9	5.9	(2.31)	21.7	(8.54)
10	5.4	(2.14)	20.8	(8.20)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 1

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-4.9	(-1.94)	11.3	(4.44)
2	-6.7	(-2.62)	17.9	(7.04)
3	-2.5	(-0.98)	17.4	(6.86)
4	-0.7	(-0.28)	18.1	(7.14)
5	-2.2	(-0.86)	18.8	(7.40)
6	-2.6	(-1.02)	18.7	(7.38)
7	-3.4	(-1.32)	18.7	(7.35)
8	-2.5	(-0.99)	20.1	(7.90)
9	-3.8	(-1.50)	21.3	(8.40)
10	-0.5	(-0.20)	22.3	(8.76)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 2

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-1.4	(-0.54)	15.0	(5.91)
2	-0.8	(-0.30)	16.4	(6.45)
3	1.1	(0.43)	17.0	(6.68)
4	1.5	(0.59)	18.4	(7.24)
5	1.2	(0.48)	18.7	(7.36)
6	-1.2	(-0.49)	20.0	(7.88)
7	-3.4	(-1.34)	20.8	(8.19)
8	-4.7	(-1.85)	20.5	(8.09)
9	-6.0	(-2.38)	18.3	(7.19)
10	1.9	(0.74)	24.1	(9.49)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 3

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-0.6	(-0.25)	15.5	(6.09)
2	-0.8	(-0.33)	15.8	(6.22)
3	-3.2	(-1.26)	17.0	(6.68)
4	-2.1	(-0.82)	17.6	(6.93)
5	-1.4	(-0.57)	18.2	(7.15)
6	0.9	(0.34)	17.7	(6.95)
7	0.8	(0.32)	19.3	(7.58)

8	3.7	(1.47)	18.6	(7.32)
9	-2.6	(-1.02)	19.5	(7.66)
10	-2.3	(-0.91)	19.7	(7.76)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 4

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-5.3	(-2.08)	14.1	(5.55)
2	-0.3	(-0.12)	13.8	(5.45)
3	2.9	(1.15)	12.1	(4.76)
4	1.9	(0.75)	16.6	(6.54)
5	0.8	(0.30)	16.3	(6.40)
6	0.3	(0.12)	15.5	(6.09)
7	-4.1	(-1.61)	16.9	(6.67)
8	-1.3	(-0.52)	19.0	(7.49)
9	-1.0	(-0.40)	20.1	(7.92)
10	-2.4	(-0.95)	20.2	(7.96)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 5

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-2.8	(-1.09)	16.1	(6.32)
2	-1.4	(-0.57)	19.9	(7.85)
3	1.0	(0.38)	19.1	(7.50)
4	4.0	(1.56)	17.2	(6.78)
5	3.6	(1.41)	16.0	(6.29)
6	-0.9	(-0.37)	15.1	(5.93)
7	-0.6	(-0.25)	15.5	(6.09)
8	-0.3	(-0.11)	15.6	(6.16)
9	-0.7	(-0.27)	16.3	(6.43)
10	-0.5	(-0.21)	17.8	(6.99)

GUN # 7 TGT # 6

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	0.7	(0.28)	4.5	(1.77)
2	0.7	(0.26)	7.5	(2.97)
3	4.0	(1.57)	11.2	(4.39)
4	1.9	(0.76)	11.0	(4.33)
5	-0.8	(-0.33)	10.4	(4.10)
6	-0.8	(-0.30)	12.4	(4.87)
7	2.2	(0.88)	12.8	(5.05)
8	7.1	(2.81)	15.9	(6.25)
9	2.1	(0.84)	14.9	(5.85)
10	1.7	(0.65)	14.4	(5.66)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 7

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	4.4	(1.72)	17.1	(6.74)
2	0.5	(0.20)	15.4	(6.07)
3	-1.1	(-0.42)	13.3	(5.22)
4	-2.9	(-1.16)	11.2	(4.39)
5	-0.4	(-0.17)	10.1	(3.98)
6	1.0	(0.38)	11.0	(4.32)
7	1.8	(0.72)	10.4	(4.10)
8	2.4	(0.95)	9.8	(3.84)
9	2.5	(0.98)	9.5	(3.74)
10	-0.6	(-0.22)	4.0	(1.56)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 8

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-8.9	(-3.51)	13.5	(5.32)
2	-8.6	(-3.39)	16.3	(6.42)
3	1.8	(0.71)	15.8	(6.23)
4	-2.5	(-1.00)	16.5	(6.50)
5	-3.4	(-1.33)	16.0	(6.28)
6	-4.6	(-1.81)	14.0	(5.52)
7	-4.0	(-1.58)	13.8	(5.43)
8	-2.7	(-1.08)	12.9	(5.09)
9	0.1	(0.05)	12.2	(4.80)
10	-1.1	(-0.43)	10.1	(3.97)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 9

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-6.4	(-2.51)	7.4	(2.90)
2	-3.4	(-1.34)	7.1	(2.79)
3	-1.1	(-0.43)	6.8	(2.69)
4	0.8	(0.32)	10.0	(3.95)
5	-0.5	(-0.18)	9.9	(3.89)
6	2.2	(0.85)	12.4	(4.90)
7	0.8	(0.31)	12.3	(4.86)
8	-0.3	(-0.10)	12.3	(4.85)
9	-4.0	(-1.57)	13.6	(5.36)
10	-2.6	(-1.03)	16.8	(6.63)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 10

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	3.3	(1.30)	5.4	(2.14)
2	2.9	(1.15)	9.8	(3.87)
3	1.9	(0.74)	10.0	(3.94)
4	1.9	(0.74)	11.7	(4.60)
5	2.9	(1.15)	11.6	(4.56)
6	5.6	(2.21)	11.6	(4.56)
7	-0.9	(-0.36)	12.5	(4.93)
8	0.3	(0.12)	14.4	(5.67)
9	-0.3	(-0.11)	14.7	(5.77)
10	2.7	(1.06)	14.3	(5.62)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 1

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-7.2	(-2.82)	18.5	(7.27)
2	-4.8	(-1.88)	22.1	(8.69)
3	-0.6	(-0.23)	21.1	(8.31)
4	0.0	(0.02)	23.0	(9.05)
5	-4.4	(-1.72)	24.0	(9.43)
6	-2.3	(-0.89)	25.6	(10.10)
7	-2.2	(-0.86)	28.6	(11.27)
8	-3.5	(-1.39)	28.4	(11.16)
9	-5.8	(-2.28)	28.9	(11.36)
10	-6.1	(-2.39)	28.0	(11.02)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 2

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-0.0	(-0.01)	28.0	(11.01)
2	-1.4	(-0.56)	27.3	(10.74)
3	-3.2	(-1.27)	27.5	(10.81)
4	-6.7	(-2.66)	27.3	(10.76)
5	-4.0	(-1.59)	24.1	(9.50)
6	-3.6	(-1.42)	24.9	(9.79)
7	-3.6	(-1.42)	25.4	(9.99)
8	-2.0	(-0.78)	25.6	(10.07)
9	-1.6	(-0.64)	25.1	(9.89)
10	4.5	(1.75)	24.4	(9.62)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 3

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	0.5	(0.18)	27.5	(10.83)
2	-2.0	(-0.77)	28.7	(11.30)
3	-1.6	(-0.62)	26.9	(10.59)
4	-2.3	(-0.89)	26.1	(10.29)
5	-2.1	(-0.83)	24.8	(9.78)
6	-5.2	(-2.05)	25.9	(10.18)
7	-9.4	(-3.68)	25.0	(9.85)

8	-5.1	(-2.02)	23.3	(9.17)
9	-2.4	(-0.96)	23.1	(9.11)
10	-3.6	(-1.43)	17.3	(6.82)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 4

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-1.3	(-0.51)	19.4	(7.64)
2	-1.0	(-0.39)	23.0	(9.04)
3	-1.2	(-0.48)	24.0	(9.46)
4	1.3	(0.53)	22.8	(8.99)
5	1.7	(0.66)	23.7	(9.34)
6	1.6	(0.62)	26.1	(10.29)
7	3.8	(1.49)	30.2	(11.90)
8	-1.6	(-0.63)	26.8	(10.53)
9	-2.9	(-1.16)	28.3	(11.16)
10	-4.2	(-1.64)	27.7	(10.91)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12
TGT # 5

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-1.9	(-0.74)	27.8	(10.93)
2	-2.5	(-1.00)	27.7	(10.91)
3	-3.6	(-1.43)	25.9	(10.18)
4	-4.5	(-1.78)	26.1	(10.29)
5	-6.3	(-2.47)	23.8	(9.36)
6	-5.3	(-2.10)	23.2	(9.12)
7	-5.4	(-2.14)	21.9	(8.63)
8	-6.4	(-2.53)	21.0	(8.27)
9	-1.9	(-0.74)	20.5	(8.09)
10	0.6	(0.22)	21.7	(8.56)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 6

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-0.2	(-0.10)	5.0	(1.98)
2	-3.0	(-1.19)	7.6	(3.01)
3	-4.4	(-1.72)	6.3	(2.47)
4	-8.9	(-3.50)	8.2	(3.24)
5	-8.2	(-3.21)	2.9	(1.13)
6	-8.4	(-3.32)	1.8	(0.71)
7	-8.8	(-3.45)	1.6	(0.62)
8	-3.2	(-1.26)	1.1	(0.44)
9	-3.8	(-1.48)	0.7	(0.27)
10	-1.7	(-0.66)	-4.0	(-1.58)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 7

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-7.4	(-2.91)	-1.5	(-0.61)
2	-7.8	(-3.06)	-4.0	(-1.59)
3	-6.6	(-2.59)	-3.4	(-1.35)
4	-5.9	(-2.30)	-5.3	(-2.07)
5	2.0	(0.78)	-4.0	(-1.58)
6	-3.0	(-1.17)	-1.1	(-0.42)
7	-2.5	(-0.97)	0.3	(0.13)
8	-1.1	(-0.44)	1.3	(0.50)
9	0.6	(0.26)	3.5	(1.36)
10	-2.6	(-1.01)	2.2	(0.85)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 8

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-6.9	(-2.73)	4.5	(1.78)
2	-7.1	(-2.80)	-0.2	(-0.07)
3	-7.1	(-2.79)	-3.4	(-1.33)
4	-5.8	(-2.29)	-0.7	(-0.27)
5	-4.8	(-1.89)	-0.9	(-0.35)
6	-4.4	(-1.72)	-0.9	(-0.35)
7	-3.3	(-1.31)	-0.4	(-0.15)

8	-1.4	(-0.54)	-2.1	(-0.83)
9	-1.6	(-0.62)	0.9	(0.36)
10	-3.4	(-1.35)	3.8	(1.50)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 9

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-9.0	(-3.56)	3.7	(1.46)
2	-5.1	(-2.02)	1.9	(0.75)
3	-4.1	(-1.62)	1.0	(0.39)
4	-3.2	(-1.25)	1.2	(0.48)
5	-2.7	(-1.08)	-0.2	(-0.08)
6	-5.9	(-2.34)	-2.1	(-0.82)
7	-5.1	(-1.99)	-2.7	(-1.07)
8	-3.8	(-1.49)	-2.2	(-0.86)
9	-1.4	(-0.54)	-2.7	(-1.06)
10	-4.9	(-1.93)	-7.1	(-2.81)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 10

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-1.3	(-0.51)	0.5	(0.21)
2	-5.2	(-2.06)	2.9	(1.16)
3	-9.6	(-3.76)	1.9	(0.73)
4	-9.8	(-3.85)	-1.7	(-0.67)
5	-7.8	(-3.09)	-1.2	(-0.47)
6	-4.2	(-1.64)	-1.0	(-0.41)
7	-3.2	(-1.27)	-3.7	(-1.46)
8	-3.3	(-1.30)	-3.2	(-1.28)
9	-4.4	(-1.72)	-3.1	(-1.21)
10	-4.5	(-1.77)	-3.9	(-1.53)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 1

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-8.4	(-3.29)	27.8	(10.95)
2	-10.9	(-4.27)	29.2	(11.49)
3	-13.8	(-5.42)	31.5	(12.40)
4	-12.1	(-4.78)	32.2	(12.66)
5	-10.6	(-4.16)	33.3	(13.11)
6	-13.1	(-5.15)	33.1	(13.02)
7	-13.6	(-5.34)	33.3	(13.10)
8	-11.2	(-4.41)	36.2	(14.26)
9	-11.8	(-4.64)	36.3	(14.28)
10	-15.0	(-5.89)	35.5	(13.99)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 2

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-8.4	(-3.30)	27.9	(10.97)
2	-7.8	(-3.06)	29.1	(11.45)
3	-5.3	(-2.09)	31.4	(12.34)
4	-8.9	(-3.49)	33.6	(13.22)
5	-8.4	(-3.30)	33.4	(13.14)
6	-7.5	(-2.96)	34.0	(13.39)
7	-8.6	(-3.37)	34.6	(13.62)
8	-7.9	(-3.11)	37.5	(14.78)
9	-8.2	(-3.21)	37.5	(14.78)
10	-11.1	(-4.35)	36.5	(14.36)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 3

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-11.0	(-4.32)	34.1	(13.41)
2	-10.2	(-4.00)	33.1	(13.03)
3	-13.2	(-5.19)	32.2	(12.68)
4	-7.9	(-3.12)	30.2	(11.89)
5	-10.2	(-4.01)	30.7	(12.10)
6	-10.6	(-4.17)	30.1	(11.87)
7	-13.0	(-5.13)	29.9	(11.78)

8	-9.2	(-3.63)	28.6	(11.27)
9	-12.2	(-4.79)	26.4	(10.38)
10	-11.6	(-4.57)	25.6	(10.08)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 4

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-13.1	(-5.15)	27.2	(10.70)
2	-13.2	(-5.19)	28.7	(11.31)
3	-12.3	(-4.84)	30.4	(11.97)
4	-9.8	(-3.87)	30.5	(12.01)
5	-10.1	(-3.97)	30.6	(12.05)
6	-10.0	(-3.95)	31.8	(12.51)
7	-12.4	(-4.87)	31.8	(12.52)
8	-7.3	(-2.89)	32.2	(12.66)
9	-9.0	(-3.55)	33.3	(13.10)
10	-11.2	(-4.40)	35.1	(13.81)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 5

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-5.5	(-2.16)	24.6	(9.68)
2	-5.6	(-2.20)	31.5	(12.40)
3	-8.9	(-3.50)	28.6	(11.25)
4	-9.1	(-3.60)	32.1	(12.63)
5	-11.5	(-4.55)	31.2	(12.28)
6	-10.7	(-4.22)	28.7	(11.30)
7	-11.6	(-4.58)	26.8	(10.56)
8	-12.9	(-5.09)	28.0	(11.02)
9	-14.1	(-5.54)	28.6	(11.25)
10	-16.1	(-6.36)	30.6	(12.03)

Group II - After Drop Test

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY
Standard Rifle No. 2A

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2	7.9	23.4	1.9	3.4	6.2	11.6	13.2	10
M16A2	6.5	25.2	2.5	2.1	8.5	6.0	9.4	10
M16A2	6.2	22.9	2.3	2.2	7.6	6.4	9.7	10
M16A2	4.0	25.5	2.7	3.4	8.1	12.1	12.8	10
M16A2	6.0	23.3	2.4	1.9	6.7	6.1	8.3	10
MEAN	6.1	24.1	2.4	2.6	7.4	8.4	10.7	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2	1.5	2.4	2.9	3.9	-5.1	10
M16A2	1.8	1.8	2.8	3.3	2.9	10
M16A2	1.7	1.8	2.8	3.2	-2.7	10
M16A2	2.2	2.1	3.3	4.3	5.3	10
M16A2	1.9	1.5	2.7	3.1	-1.7	10
MEAN	1.8	1.9	2.9	3.6	-0.3	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2	3.10	9.21	0.75	1.34	2.44	4.58	5.19	10
M16A2	2.56	9.91	1.00	0.84	3.34	2.36	3.70	10
M16A2	2.43	9.03	0.92	0.88	3.00	2.53	3.81	10
M16A2	1.56	10.03	1.06	1.33	3.19	4.75	5.04	10
M16A2	2.36	9.18	0.94	0.76	2.65	2.41	3.28	10
MEAN	2.40	9.47	0.93	1.03	2.93	3.33	4.21	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2	0.59	0.96	1.16	1.54	-0.79	10
M16A2	0.70	0.70	1.08	1.30	0.44	10
M16A2	0.68	0.70	1.11	1.28	-0.42	10
M16A2	0.87	0.81	1.31	1.70	0.83	10
M16A2	0.76	0.58	1.05	1.21	-0.27	10
MEAN	0.72	0.75	1.14	1.41	-0.04	

* Covariance in square in.

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY

Enhanced Rifle No. 2 with carrying Handle Rear Sight

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M116A2E	22.5	27.2	2.2	2.0	6.4	5.9	7.7	10
M16A2E	20.1	28.6	2.9	1.7	10.5	5.9	10.8	10
M16A2E	19.2	27.7	2.3	3.1	7.1	10.3	10.9	10
M16A2E	18.6	27.8	1.7	2.7	4.9	8.7	9.1	10
M16A2E	18.7	27.6	3.2	2.7	10.9	7.5	12.6	10
MEAN	19.8	27.8	2.5	2.4	8.0	7.7	10.2	

TARGET	MHD	MVD	MR	RSD	COV*	N
M116A2E	1.8	1.6	2.7	3.0	1.7	10
M16A2E	1.9	1.2	2.7	3.3	0.9	10
M16A2E	1.9	2.3	3.2	3.9	-2.1	10
M16A2E	1.5	2.0	2.7	3.2	-0.2	10
M16A2E	2.3	2.1	3.4	4.2	4.5	10
MEAN	1.9	1.9	2.9	3.5	1.0	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M116A2E	8.84	10.70	0.88	0.78	2.54	2.33	3.03	10
M16A2E	7.92	11.26	1.13	0.66	4.14	2.32	4.26	10
M16A2E	7.55	10.91	0.91	1.23	2.79	4.05	4.30	10
M16A2E	7.32	10.95	0.66	1.06	1.92	3.44	3.57	10
M16A2E	7.34	10.85	1.26	1.06	4.28	2.97	4.97	10
MEAN	7.80	10.93	0.97	0.96	3.13	3.02	4.03	

TARGET	MHD	MVD	MR	RSD	COV*	N
M116A2E	0.73	0.62	1.05	1.17	0.26	10
M16A2E	0.76	0.48	1.05	1.30	0.15	10
M16A2E	0.76	0.92	1.25	1.53	-0.32	10
M16A2E	0.57	0.79	1.07	1.25	-0.03	10
M16A2E	0.89	0.83	1.33	1.65	0.69	10
MEAN	0.74	0.73	1.15	1.38	0.15	

* Covariance in square in.

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY
Enhanced Rifle No. 7 with Carrying Handle Rear Sight Assembly

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	3.9	21.9	2.7	3.6	8.9	9.6	13.1	10
M16A2E	3.6	22.6	2.1	2.2	6.3	8.2	9.3	10
M16A2E	2.7	21.3	1.3	1.0	3.8	3.7	4.1	10
M16A2E	2.6	21.5	1.8	2.7	5.8	8.4	9.0	10
M16A2E	3.7	21.8	1.9	1.2	7.3	3.7	7.3	10
MEAN	3.3	21.8	2.0	2.2	6.4	6.7	8.6	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	2.1	2.7	3.6	4.5	-1.8	10
M16A2E	1.6	1.6	2.5	3.0	2.2	10
M16A2E	1.1	0.8	1.5	1.7	-0.1	10
M16A2E	1.3	2.1	2.6	3.3	0.3	10
M16A2E	1.3	1.0	1.9	2.2	0.0	10
MEAN	1.5	1.6	2.4	2.9	0.1	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	1.52	8.62	1.08	1.43	3.52	3.77	5.16	10
M16A2E	1.44	8.90	0.81	0.86	2.46	3.22	3.67	10
M16A2E	1.08	8.37	0.52	0.41	1.50	1.45	1.61	10
M16A2E	1.03	8.48	0.71	1.08	2.28	3.32	3.54	10
M16A2E	1.47	8.57	0.74	0.48	2.85	1.46	2.86	10
MEAN	1.31	8.59	0.77	0.85	2.52	2.64	3.37	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.84	1.06	1.43	1.79	-0.28	10
M16A2E	0.63	0.61	0.97	1.18	0.33	10
M16A2E	0.43	0.31	0.58	0.66	-0.01	10
M16A2E	0.53	0.83	1.04	1.30	0.04	10
M16A2E	0.51	0.38	0.74	0.88	0.00	10
MEAN	0.59	0.64	0.95	1.16	0.02	

* Covariance in square in.

SAAW Branch, MTD, APG, MD
TARGET SCORING SUMMARY

Enhanced Rifle No. 12 with Carrying Handle Rear Sight Assembly

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	2.1	30.0	1.4	2.0	4.1	7.1	7.2	10
M16A2E	2.7	29.2	1.7	2.8	5.4	8.0	8.2	10
M16A2E	2.3	26.1	2.8	2.7	7.7	8.6	10.7	10
M16A2E	-0.5	28.2	2.7	2.2	8.3	6.9	8.3	10
M16A2E	-0.2	25.6	2.2	3.0	8.1	8.2	8.3	10
MEAN	1.3	27.8	2.2	2.5	6.7	7.8	8.5	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	1.2	1.5	2.1	2.4	-0.7	10
M16A2E	1.3	2.3	2.8	3.2	-0.8	10
M16A2E	2.3	2.0	3.4	3.9	0.7	10
M16A2E	2.2	1.6	3.2	3.5	1.1	10
M16A2E	1.5	2.3	3.3	3.7	-0.4	10
MEAN	1.7	2.0	2.9	3.4	-0.0	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	0.82	11.83	0.56	0.78	1.63	2.80	2.83	10
M16A2E	1.08	11.51	0.66	1.09	2.11	3.15	3.21	10
M16A2E	0.90	10.27	1.11	1.08	3.02	3.37	4.21	10
M16A2E	-0.21	11.12	1.08	0.87	3.25	2.71	3.25	10
M16A2E	-0.06	10.06	0.88	1.17	3.18	3.23	3.28	10
MEAN	0.51	10.96	0.86	1.00	2.64	3.05	3.36	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.46	0.58	0.84	0.96	-0.10	10
M16A2E	0.52	0.91	1.09	1.27	-0.12	10
M16A2E	0.92	0.80	1.33	1.55	0.11	10
M16A2E	0.86	0.65	1.25	1.38	0.17	10
M16A2E	0.60	0.91	1.29	1.46	-0.05	10
MEAN	0.67	0.77	1.16	1.32	-0.00	

* Covariance in square in.

SAAW Branch, MTD,APG,MD
TARGET SCORING SUMMARY
Enhanced Rifle No. 17 with M203 Grenade Launcher and Carrying Handle Rear Sight

TARGET STATISTICS IN CENTIMETERS

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-15.3	26.4	1.2	2.3	4.1	6.6	7.0	10
M16A2E	-18.5	22.8	1.7	1.8	6.1	5.7	7.1	10
M16A2E	-16.5	22.3	1.9	2.8	5.0	10.4	11.5	10
M16A2E	-18.5	19.7	1.2	1.3	3.9	3.3	4.0	10
M16A2E	-17.3	21.7	1.1	1.2	4.0	3.8	4.4	10
MEAN	-17.2	22.6	1.4	1.9	4.6	6.0	6.8	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	1.0	1.9	2.3	2.6	-0.1	10
M16A2E	1.2	1.4	2.0	2.5	2.2	10
M16A2E	1.6	2.0	2.7	3.4	-1.8	10
M16A2E	0.9	1.1	1.6	1.7	0.5	10
M16A2E	0.8	1.0	1.4	1.7	-0.5	10
MEAN	1.1	1.5	2.0	2.4	0.0	

* Covariance in square cm.

TARGET STATISTICS IN INCHES

TARGET	HCI	VCI	HSD	VSD	EHS	EVS	ES	N
M16A2E	-6.04	10.38	0.49	0.90	1.60	2.60	2.74	10
M16A2E	-7.29	9.00	0.67	0.72	2.40	2.26	2.79	10
M16A2E	-6.50	8.80	0.74	1.11	1.96	4.09	4.53	10
M16A2E	-7.29	7.74	0.46	0.50	1.54	1.31	1.57	10
M16A2E	-6.81	8.54	0.44	0.49	1.57	1.50	1.75	10
MEAN	-6.79	8.89	0.56	0.75	1.81	2.35	2.68	

TARGET	MHD	MVD	MR	RSD	COV*	N
M16A2E	0.38	0.76	0.90	1.02	-0.02	10
M16A2E	0.47	0.53	0.78	0.98	0.35	10
M16A2E	0.63	0.80	1.07	1.34	-0.28	10
M16A2E	0.36	0.42	0.63	0.68	0.07	10
M16A2E	0.32	0.39	0.56	0.66	-0.08	10
MEAN	0.43	0.58	0.79	0.94	0.01	

* Covariance in square in.

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16MA2

GUN # 2ATGT # 1
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	11.5	(4.54)	16.8	(6.61)
2	8.3	(3.25)	20.6	(8.12)
3	8.4	(3.32)	22.7	(8.93)
4	8.1	(3.20)	22.7	(8.94)
5	9.2	(3.61)	24.0	(9.45)
6	9.2	(3.62)	25.3	(9.95)
7	5.3	(2.09)	28.4	(11.19)
8	5.3	(2.10)	28.1	(11.08)
9	6.6	(2.58)	22.7	(8.94)
10	6.9	(2.70)	22.6	(8.91)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

GUN # 2ATGT # 2
AFTEE COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	6.3	(2.47)	21.6	(8.52)
2	5.1	(1.99)	22.2	(8.73)
3	4.2	(1.66)	24.1	(9.51)
4	4.8	(1.88)	23.8	(9.37)
5	5.8	(2.30)	25.4	(9.98)
6	5.0	(1.97)	25.9	(10.20)
7	5.4	(2.11)	27.1	(10.69)
8	7.1	(2.78)	27.3	(10.75)
9	8.6	(3.39)	26.5	(10.43)
10	12.7	(5.00)	27.6	(10.89)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

GUN # 2ATGT # 3
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	6.3	(2.47)	19.9	(7.83)
2	10.8	(4.24)	19.5	(7.69)
3	6.3	(2.47)	21.3	(8.37)
4	7.7	(3.02)	22.6	(8.89)

5	7.6	(3.00)	23.0	(9.06)
6	7.0	(2.77)	26.0	(10.22)
7	5.8	(2.29)	25.0	(9.85)
8	3.1	(1.23)	25.5	(10.04)
9	3.4	(1.34)	24.1	(9.48)
10	3.7	(1.45)	22.4	(8.84)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

GUN # 2 TGT # 4
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	0.7	(0.26)	16.5	(6.48)
2	-0.6	(-0.25)	26.0	(10.22)
3	2.1	(0.81)	25.1	(9.88)
4	3.2	(1.27)	24.6	(9.68)
5	3.5	(1.37)	25.5	(10.06)
6	4.9	(1.95)	28.5	(11.23)
7	5.6	(2.21)	27.5	(10.83)
8	6.3	(2.47)	27.0	(10.63)
9	6.6	(2.61)	27.5	(10.81)
10	7.5	(2.94)	26.6	(10.48)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2

GUN # 2 TGT # 5
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	3.0	(1.18)	21.5	(8.47)
2	3.0	(1.17)	23.6	(9.30)
3	2.4	(0.93)	27.2	(10.70)
4	7.1	(2.79)	21.1	(8.29)
5	6.7	(2.65)	22.5	(8.85)
6	6.0	(2.36)	24.2	(9.52)
7	6.4	(2.54)	25.1	(9.89)
8	8.2	(3.22)	23.9	(9.40)
9	9.1	(3.58)	23.2	(9.14)
10	8.0	(3.16)	21.0	(8.29)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M116A2E

GUN # 2 TGT # 1
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	19.0	(7.48)	24.9	(9.80)
2	22.8	(8.97)	24.0	(9.45)
3	21.4	(8.44)	25.2	(9.92)
4	20.2	(7.93)	27.4	(10.77)
5	20.0	(7.88)	29.0	(11.40)
6	22.9	(9.00)	28.5	(11.21)
7	23.4	(9.23)	27.2	(10.72)
8	24.6	(9.70)	26.6	(10.48)
9	24.8	(9.78)	29.9	(11.79)
10	25.5	(10.02)	29.0	(11.40)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 2
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	14.6	(5.73)	27.7	(10.89)
2	17.3	(6.79)	28.6	(11.27)
3	19.2	(7.55)	29.8	(11.71)
4	20.2	(7.97)	31.6	(12.42)
5	20.3	(7.99)	28.9	(11.40)
6	20.4	(8.05)	28.5	(11.22)
7	21.9	(8.62)	27.9	(11.00)
8	22.5	(8.84)	27.0	(10.63)
9	25.1	(9.88)	30.2	(11.90)
10	19.8	(7.80)	25.7	(10.11)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 3
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	15.8	(6.21)	32.2	(12.69)
2	21.7	(8.53)	32.9	(12.96)
3	17.3	(6.81)	29.1	(11.44)
4	17.4	(6.84)	28.3	(11.15)

5	17.2	(6.78)	25.4	(9.99)
6	19.1	(7.52)	27.7	(10.89)
7	18.7	(7.36)	26.6	(10.49)
8	22.9	(9.00)	26.3	(10.35)
9	20.9	(8.21)	25.8	(10.17)
10	21.0	(8.28)	22.6	(8.92)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 4
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	19.8	(7.80)	24.0	(9.44)
2	18.2	(7.15)	25.6	(10.09)
3	17.4	(6.84)	26.7	(10.52)
4	17.0	(6.70)	26.7	(10.51)
5	16.6	(6.55)	27.3	(10.76)
6	17.7	(6.96)	28.0	(11.03)
7	17.4	(6.85)	32.7	(12.88)
8	20.1	(7.90)	31.9	(12.56)
9	20.2	(7.97)	28.6	(11.28)
10	21.5	(8.47)	26.6	(10.47)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 2 TGT # 5
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	15.7	(6.18)	22.9	(9.00)
2	16.6	(6.54)	23.6	(9.30)
3	16.2	(6.38)	26.1	(10.28)
4	16.8	(6.62)	30.1	(11.85)
5	17.8	(6.99)	28.0	(11.03)
6	17.5	(6.91)	27.7	(10.92)
7	18.8	(7.41)	30.4	(11.97)
8	20.9	(8.24)	30.3	(11.94)
9	19.6	(7.72)	27.0	(10.64)
10	26.6	(10.46)	29.3	(11.54)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 1

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	1.3	(0.52)	15.7	(6.18)
2	7.8	(3.07)	15.0	(5.90)
3	3.6	(1.43)	21.9	(8.60)
4	5.1	(2.01)	21.6	(8.50)
5	1.3	(0.50)	23.3	(9.18)
6	-1.1	(-0.45)	24.6	(9.68)
7	3.6	(1.40)	24.0	(9.46)
8	4.8	(1.89)	24.5	(9.63)
9	5.4	(2.12)	24.2	(9.51)
10	6.8	(2.69)	24.4	(9.61)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 2
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-0.3	(-0.13)	19.3	(7.59)
2	1.6	(0.62)	21.3	(8.40)
3	2.1	(0.81)	21.4	(8.43)
4	4.5	(1.79)	21.9	(8.60)
5	5.8	(2.27)	21.6	(8.49)
6	5.9	(2.33)	22.5	(8.85)
7	5.9	(2.32)	23.8	(9.36)
8	3.4	(1.33)	22.8	(9.00)
9	3.6	(1.40)	24.1	(9.50)
10	4.1	(1.62)	27.5	(10.81)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 3
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	3.5	(1.39)	19.1	(7.52)
2	0.9	(0.37)	22.3	(8.76)
3	1.6	(0.63)	21.8	(8.58)
4	0.5	(0.21)	20.8	(8.20)
5	3.9	(1.54)	22.8	(8.97)

6	3.6	(1.41)	21.6	(8.52)
7	2.5	(0.97)	20.8	(8.18)
8	3.0	(1.18)	20.4	(8.05)
9	3.6	(1.42)	21.6	(8.50)
10	4.3	(1.71)	21.4	(8.43)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 4
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	2.8	(1.09)	16.6	(6.54)
2	1.2	(0.47)	18.6	(7.30)
3	4.7	(1.85)	20.4	(8.02)
4	1.8	(0.69)	20.1	(7.91)
5	0.6	(0.23)	24.1	(9.50)
6	0.5	(0.19)	25.0	(9.86)
7	6.3	(2.46)	24.9	(9.80)
8	3.1	(1.21)	22.5	(8.86)
9	3.0	(1.18)	21.7	(8.54)
10	2.4	(0.95)	21.5	(8.46)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 7 TGT # 5
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-0.2	(-0.08)	21.9	(8.62)
2	2.5	(1.00)	21.2	(8.33)
3	3.1	(1.24)	20.8	(8.18)
4	3.5	(1.38)	20.5	(8.08)
5	4.6	(1.80)	20.2	(7.94)
6	7.0	(2.77)	21.3	(8.41)
7	4.5	(1.76)	21.8	(8.60)
8	4.8	(1.91)	23.0	(9.05)
9	4.3	(1.70)	23.9	(9.40)
10	3.2	(1.26)	23.1	(9.08)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 1
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	3.4	(1.35)	26.2	(10.31)
2	2.4	(0.93)	28.4	(11.19)
3	3.3	(1.31)	28.7	(11.30)
4	4.3	(1.68)	30.7	(12.09)
5	2.4	(0.93)	33.3	(13.11)
6	2.5	(0.98)	31.2	(12.28)
7	1.6	(0.63)	30.9	(12.18)
8	0.6	(0.22)	31.5	(12.39)
9	0.2	(0.07)	29.5	(11.60)
10	0.1	(0.05)	30.1	(11.85)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 2
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	2.0	(0.79)	25.8	(10.14)
2	1.2	(0.47)	26.4	(10.39)
3	1.8	(0.70)	28.0	(11.01)
4	-0.6	(-0.23)	32.9	(12.95)
5	3.2	(1.26)	33.8	(13.29)
6	3.4	(1.34)	31.1	(12.25)
7	3.0	(1.17)	29.8	(11.74)
8	4.0	(1.58)	30.1	(11.83)
9	4.6	(1.83)	27.8	(10.94)
10	4.8	(1.88)	26.7	(10.53)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 3
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-1.6	(-0.63)	23.3	(9.16)
2	0.9	(0.37)	23.4	(9.19)
3	4.9	(1.92)	23.3	(9.17)
4	6.1	(2.39)	24.2	(9.54)

5	5.1	(2.01)	26.1	(10.28)
6	4.8	(1.89)	31.8	(12.53)
7	2.2	(0.85)	27.6	(10.88)
8	2.1	(0.82)	26.5	(10.45)
9	-0.2	(-0.09)	26.1	(10.29)
10	-1.3	(-0.50)	28.4	(11.20)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 4
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-2.9	(-1.14)	25.0	(9.85)
2	-3.5	(-1.37)	25.3	(9.98)
3	-4.9	(-1.93)	28.5	(11.24)
4	-1.1	(-0.41)	31.9	(12.57)
5	-0.5	(-0.18)	31.2	(12.27)
6	-1.2	(-0.49)	29.1	(11.45)
7	0.8	(0.31)	27.1	(10.65)
8	2.1	(0.83)	27.3	(10.76)
9	2.5	(0.98)	28.4	(11.18)
10	3.3	(1.32)	28.5	(11.22)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 12 TGT # 5
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-0.4	(-0.17)	20.7	(8.15)
2	0.2	(0.08)	21.4	(8.43)
3	5.1	(2.00)	24.9	(9.79)
4	1.0	(0.39)	25.7	(10.11)
5	-0.8	(-0.31)	27.1	(10.66)
6	0.7	(0.29)	28.8	(11.34)
7	-0.3	(-0.13)	28.9	(11.38)
8	-1.9	(-0.76)	28.9	(11.37)
9	-2.1	(-0.83)	25.4	(10.01)
10	-3.0	(-1.18)	23.9	(9.42)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 1
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-14.9	(-5.85)	30.2	(11.89)
2	-16.0	(-6.31)	28.8	(11.36)
3	-14.9	(-5.88)	28.5	(11.24)
4	-16.1	(-6.32)	27.5	(10.82)
5	-14.0	(-5.50)	26.1	(10.29)
6	-12.7	(-5.00)	23.6	(9.29)
7	-15.8	(-6.22)	25.5	(10.02)
8	-16.0	(-6.31)	24.8	(9.78)
9	-16.8	(-6.60)	24.6	(9.70)
10	-16.2	(-6.39)	23.9	(9.40)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 2
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-22.4	(-8.84)	20.2	(7.93)
2	-19.5	(-7.69)	19.5	(7.69)
3	-18.4	(-7.24)	22.4	(8.80)
4	-19.0	(-7.48)	22.6	(8.89)
5	-19.0	(-7.49)	22.9	(9.03)
6	-16.3	(-6.43)	23.0	(9.05)
7	-17.9	(-7.03)	24.2	(9.53)
8	-17.7	(-6.95)	23.9	(9.43)
9	-16.9	(-6.64)	24.5	(9.66)
10	-18.0	(-7.09)	25.3	(9.95)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 3
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-14.3	(-5.62)	16.4	(6.44)
2	-19.2	(-7.55)	19.9	(7.83)
3	-14.6	(-5.74)	21.5	(8.48)
4	-15.6	(-6.15)	22.0	(8.66)

5	-17.1	(-6.72)	21.8	(8.59)
6	-18.5	(-7.28)	22.7	(8.94)
7	-19.2	(-7.58)	26.7	(10.53)
8	-16.0	(-6.31)	24.4	(9.61)
9	-15.6	(-6.15)	23.8	(9.37)
10	-14.9	(-5.88)	24.2	(9.51)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17
TGT # 4
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-20.5	(-8.08)	19.0	(7.48)
2	-19.3	(-7.61)	18.5	(7.28)
3	-19.3	(-7.59)	18.2	(7.17)
4	-18.9	(-7.43)	18.4	(7.24)
5	-18.2	(-7.18)	19.1	(7.51)
6	-17.1	(-6.73)	19.5	(7.67)
7	-16.6	(-6.55)	19.8	(7.80)
8	-17.7	(-6.95)	21.4	(8.42)
9	-18.4	(-7.24)	21.5	(8.48)
10	-19.2	(-7.58)	21.2	(8.34)

SAAW Branch, MTD, APG, MD
ACCURACY SCORING OF TARGET: M16A2E

GUN # 17 TGT # 5
AFTER COLD DROP

Shot No.	X Coordinate Cm.	(Inch)	Y Coordinate Cm.	(Inch)
1	-15.8	(-6.24)	19.6	(7.70)
2	-16.5	(-6.50)	20.1	(7.93)
3	-17.1	(-6.75)	20.9	(8.22)
4	-16.9	(-6.67)	21.3	(8.40)
5	-16.3	(-6.43)	22.2	(8.75)
6	-16.9	(-6.65)	23.1	(9.10)
7	-17.5	(-6.88)	22.4	(8.82)
8	-17.8	(-7.01)	22.4	(8.80)
9	-18.1	(-7.13)	23.4	(9.20)
10	-19.8	(-7.81)	21.5	(8.48)

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FUNCTION FIRING DATA

The results of function firing of the Enhanced M16A2 rifles are contained in Tables 1 and 2. The data on retention of the carrying handle/rear sight assembly, and the night vision sight (AN/PVS-4) as a result of firing either 60- or 120-round series from the Enhanced M16A2 rifle are displayed in Table 3. The combined data for hot barrel and obstructed bore firings done with the Enhanced rifle No. 3 are presented in Table 4. (Photographs of the rifle and ammunition damage are contained in encl 5, fig. 14). Data on the firing of the rifles for accuracy and dispersion before and after the low temperature drop test series are contained in Table 5.

TABLE 1. WEAPON FUNCTIONING PERFORMANCE DURING FIRING AT 0° MUZZLE ELEVATION (INITIAL FUNCTION CHECK)

Wpn ID SN	Test No.	Rd Fired	Malfunction Type	Malfunction Quantity	Cyclic Rate, spm Min	Cyclic Rate, spm Max	Cyclic Rate, spm Avg	Ejection Pattern, Deg
6095242	1	60	-	0	-	-	-	60 to 105
6095266	2	60	-	0	766	839	803	60 to 105
6095479	3	60	-	0	758	820	785	60 to 105
6095491	4	60	-	0	656	750	711	60 to 120
6095492	5	60	-	0	705	788	750	60 to 120
6095493	6	60	-	0	641	769	716	60 to 120
6095495	7	60	-	0	721	799	754	60 to 120
6107901	8	60	-	0	718	805	758	60 to 120
6107902	9	60	-	0	622	749	690	90 to 120
6107903	10	60	-	0	711	788	751	90 to 120
6107915	11	60	-	0	687	767	728	90 to 120
6107918	12	60	-	0	634	740	691	90 to 120
6107949	13	60	-	0	719	809	772	90 to 120
6108922	14	60	-	0	658	760	712	90 to 120
6108943	15	60	-	0	699	785	736	90 to 120
6109021	16	60	-	0	718	783	741	90 to 120
6109088	17	60	-	0	626	739	697	90 to 120
6109090	18	60	-	0	670	733	708	90 to 120
6109093	19	60	-	0	660	749	714	90 to 120
6109097	20	60	-	0	691	748	722	90 to 120

TABLE 2. WEAPON FUNCTIONING PERFORMANCE DURING FIRING AT +80° MUZZLE ELEVATION (ATTITUDES FIRING TEST)

Wpn ID SN	Test No.	Rd Fired	Malfunction Type	Malfunction Quantity	Malfunction Mag/Rd	Cyclic Rate, spm Min	Cyclic Rate, spm Max	Cyclic Rate, spm Avg	Ejection Pattern, Deg
6095242	1	120	aFFD	1	3/1	723	880	802	90 to 120
6095266	2	120	bFFD	2	3/1,11	751	894	830	90 to 120
6095479	3	120	-	0	-	750	906	830	90 to 120
6095491	4	120	-	0	-	689	884	788	90 to 120
6095492	5	120	-	0	-	710	891	813	90 to 120
6107915	11	120	-	0	-	-	-	-	90 to 120
6107918	12	120	-	0	-	-	-	-	90 to 120
6107949	13	120	-	0	-	-	-	-	90 to 120
6108922	14	120	-	0	-	-	-	-	90 to 120
6108943	15	120	-	0	-	-	-	-	90 to 120
6109021	16	120	-	0	-	702	871	789	90 to 120
6109088	17	120	-	0	-	660	844	753	90 to 120
6109090	18	120	-	0	-	661	844	742	90 to 120
6109093	19	120	-	0	-	674	846	758	90 to 120
6109097	20	120	-	0	-	678	831	762	90 to 120

[a]Partial strip of first round from third magazine in four-magazine firing sequence. Used bolt assist device to clear stoppage.

[b]First-round partial strip and double feed of rounds 11 and 12 caused by error in loading of the magazine.

TABLE 3. POSITION OF FRONT AND REAR SIGHT ASSEMBLY LOCKING KNOBS AFTER FIRING[a]

Wpn ID SN	Test No.	Rd. Fired	Degree of Retention[b] Front Knob Tight	Front Knob Loose	Front Knob Free	Rear Knob Tight	Rear Knob Loose	Rear Knob Free
6095242	1	60		X			X	
		120			X		X	
6095266	2	60	X			X		
		120			X		X	
6095479	3	60	X			X		
		120	X					X
6095491	4	60		X			X	
		120	X			X		
6095492	5	60	X				X	
		120	X				X	
6107915	11	60	X			X		
		120		X			X	
6107918	12	60	X			X		
		120		X		X		
6107949	13	60		X			X	
		120	X			X		
6108922	14	60			X	X		
		120	X			X		
6108943	15	60	X			X		
		120			X	X		
6109021	16	60	X			X		
		120	X				X	
6109088	17	60		X		X		
		120			X		X	
6109090	18	60	X			X		
		120		X				X
6109093	19	60			X		X	
		120	X					X
6109097	20	60	X					X
		120		X		X		
Total:		60	6	3	1	5	4	1
		120	5	2	3	2	5	3
		(Carrying handle/rear sight assembly) (Rifles 1 to 5, and 16 to 20)						
Total:		60	3	1	1	4	1	0
		120	2	2	1	4	1	0
		(Night vision sight AN/PVS-4) (Rifles 11 to 15)						

See footnotes on following page.

TABLE 3 (CONT'D)

[a]Enhanced rifles No. 1 to 5 equipped with carrying handle/rear sight assembly; No. 16 to 20 additionally had M203 grenade launchers attached. No. 11 to 15 had one night vision sight, AN/PVS-4, transferred from rifle to rifle for each firing. The 60-round sequence was fired handheld and shoulder fired from benchrest at 0° muzzle elevation. The 120-round sequence was handheld and fired at +80° muzzle elevation.
[b]Loose is less than tight, but not free of engagement with the clamping bar on the sight base.

Note: All locking knobs were retightened between firings of 60 and 120 rounds.

TABLE 4. FUNCTIONING DATA FOR ENHANCED M16A2 RIFLE NO. 3 (SN 6095479) SUBJECTED TO A SERIES OF DESTRUCTIVE TESTS

Test Condition	Rd No.	Type	Quantity	Magazine/Round	Remarks
Hot-barrel, open breech cook off	170	FFD	1	6/20	Short-loaded magazine. Waited 15 minutes before approaching weapon to investigate stoppage. Continued firing another 304 rounds before chambering cookoff round No. 475.
	475	FTC	1	17/5	Round cooked off in approximately 1 minute. Bullet lodged in bore at muzzle. The cartridge case ruptured with the magazine being damaged.
Bullet obstruction in-bore	1	-	-	-	Fired case extracted and ejected normally. Bullet obstruction expelled from bore by fired projectile, slightly swelling the barrel at the point of bullet impact. Headspace was 1.4656 (unchanged).
12-inch mud obstruction in-bore from muzzle toward breech	1	FEX	1	-	Case head swelling and rupture, bent extractor. Bolt lug set-back increased headspace to 1.4703. (New bolt gave a 1.4656 reading.) Replaced extractor, spring and pin only.
Water obstruction in entire bore	1	FEX	1	-	Case head swelling and rupture, bent extractor, broken bolt carrier. Barrel difficult to remove from upper receiver. Bullet lodged in bore at muzzle.

FFD = failure to feed.
FTC = failure to chamber.
FEX = failure to extract.

TABLE 5. FUNCTIONING DATA FOR RIFLES FIRED DURING ACCURACY AND DISPERSION TESTING BEFORE AND AFTER THE LOW TEMPERATURE DROP TEST

Test Phase	Wpn ID SN	Test No.	Rd Fired	Malfunctions Type	Malfunctions Quantity	Remarks
Before drop	6061058	2A	53	-	0	a-
	6095266	2	53	-	0	b-
	6095495	7	103	-	0	b,c-
	6107918	12	103	-	0	b,d-
	6109088	17	53	-	0	e-
After drop	6061058	2A	50	-	0	a-
	6095266	2	50	-	0	b-
	6095495	7	50	-	0	b-
	6107918	12	50	-	0	b-
	6109088	17	50	-	0	e-
Totals	-	-	615	-	0	-

[a]Standard M16A2 rifle fired for control.
[b]Enhanced M16A2 rifle fired with carrying handle/rear sight assembly on rifle.
[c]Enhanced M16A2 rifle fired with auxiliary rear sight.
[d]Enhanced M16A2 rifle fired with night vision sight AN/PVS-4.
[e]Enhanced M16A2 rifle fired with carrying handle/rear sight assembly on rifle. M203 grenade launcher assembly also attached to the rifle, but without quadrant rear sight attached to the carrying handle.

Note: Three zeroing/fouling shots were fired prior to the before drop phase with each rifle. This was followed by five 10-round targets per rifle. One 20-round magazine was used for all firings. Ten rounds (one target) were loaded each time and fired in the semiautomatic mode with the rifles handheld and shoulder fired from benchrest.

PHOTOGRAPHS

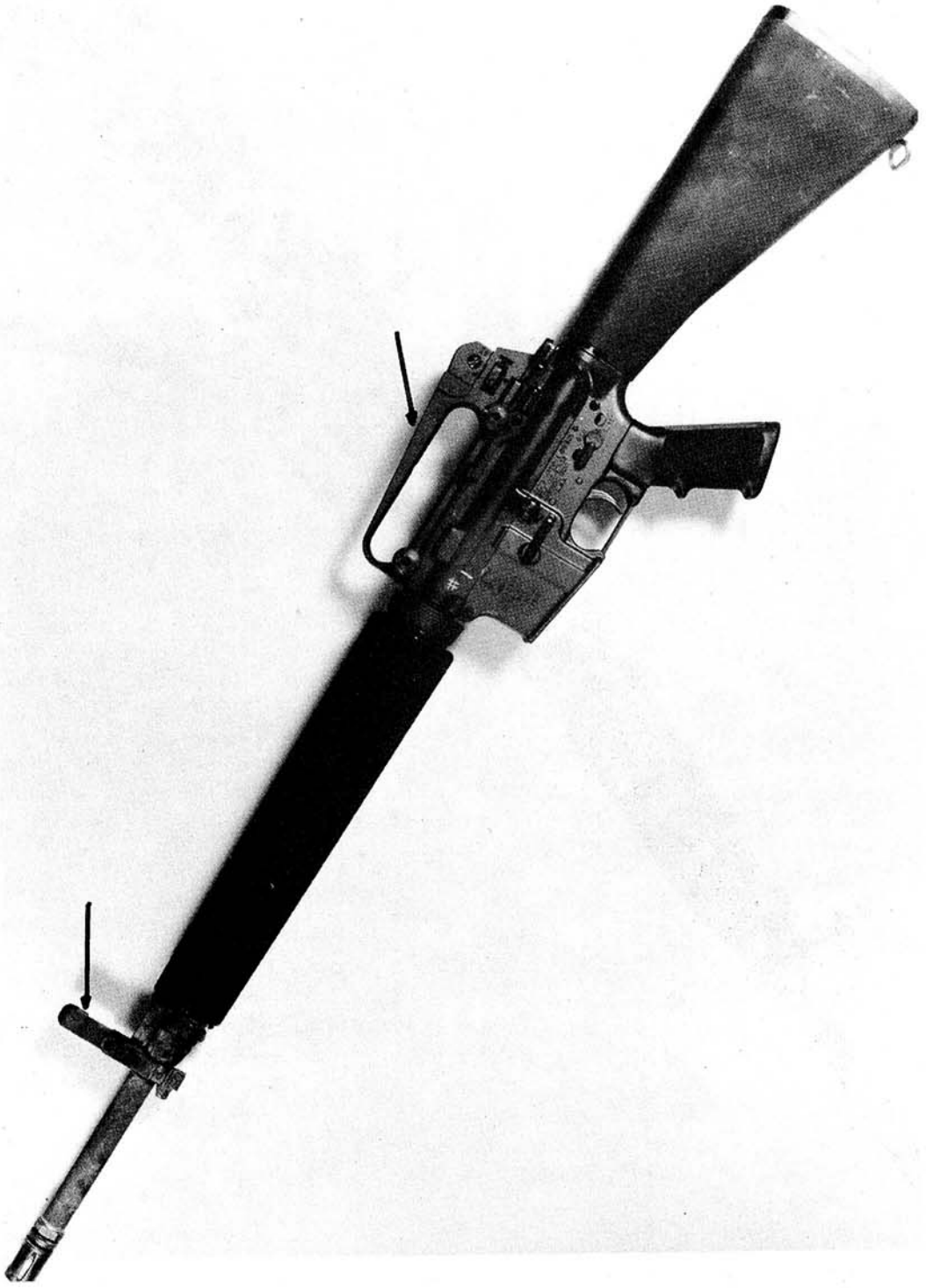


Figure 1. Showing left side view of Enhanced M16A2 rifle with carrying handle/rear sight assembly installed and folding front sight erected.

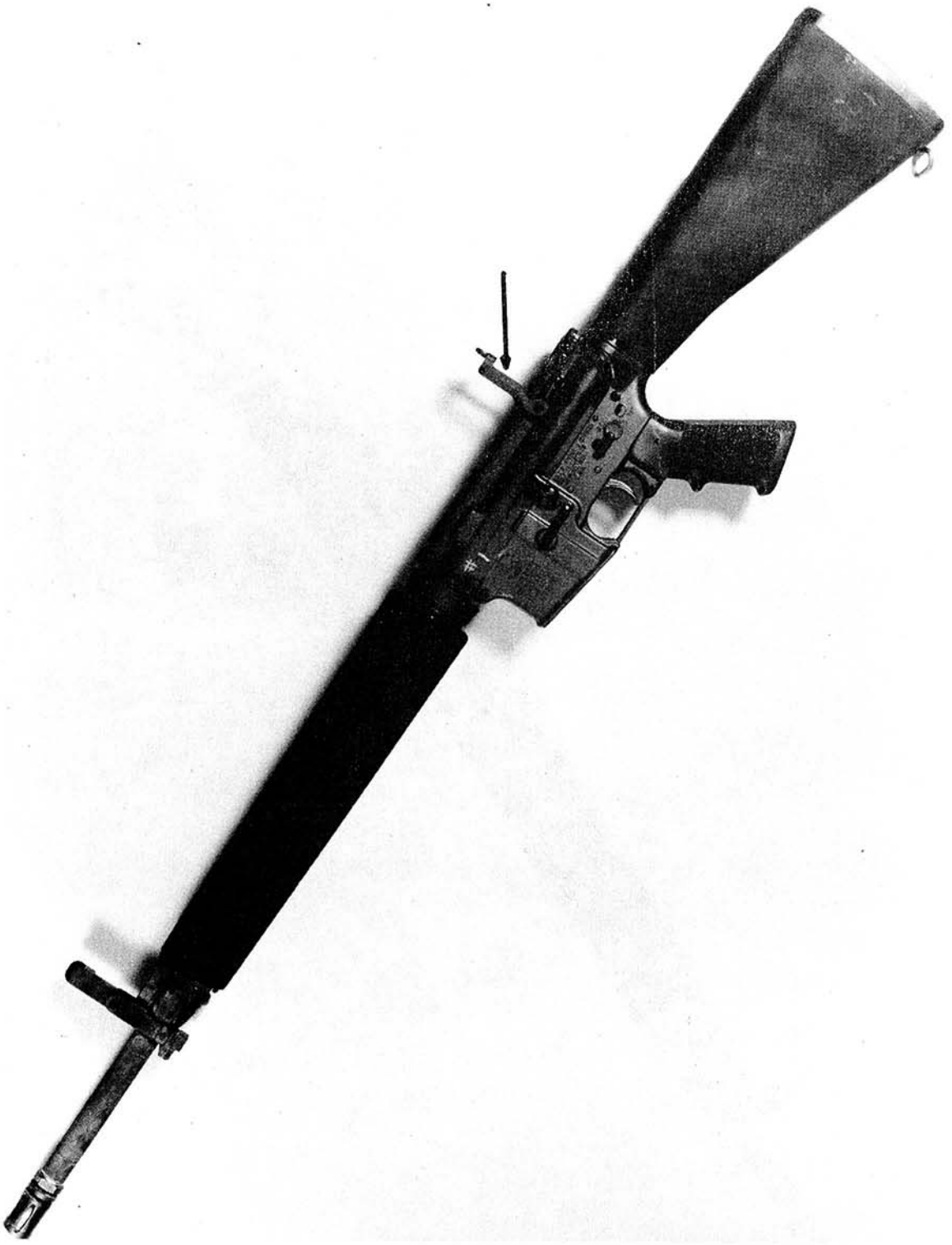


Figure 2. Showing left side view of Enhanced M16A2 rifle with carrying handle/rear sight assembly removed and auxiliary rear sight erected.

Figure 3. Showing top view of Enhanced M16A2 rifle with carrying handle/rear sight assembly removed and auxiliary rear sight in stowed position.

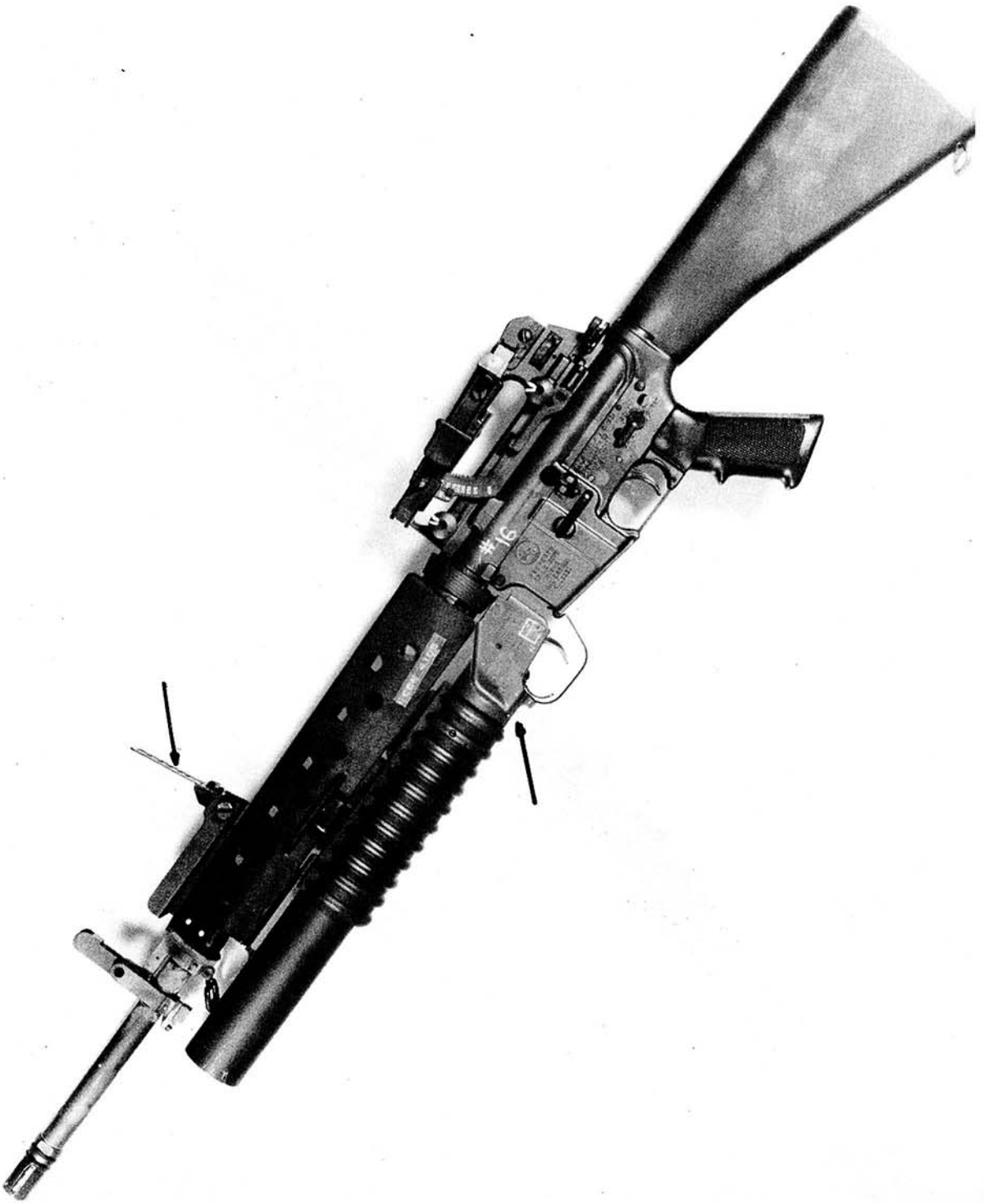


Figure 4. Left side view of Enhanced M16A2 rifle with M203 grenade launcher attached. The short-range launcher sight is shown erected for use with the rifle front sight.

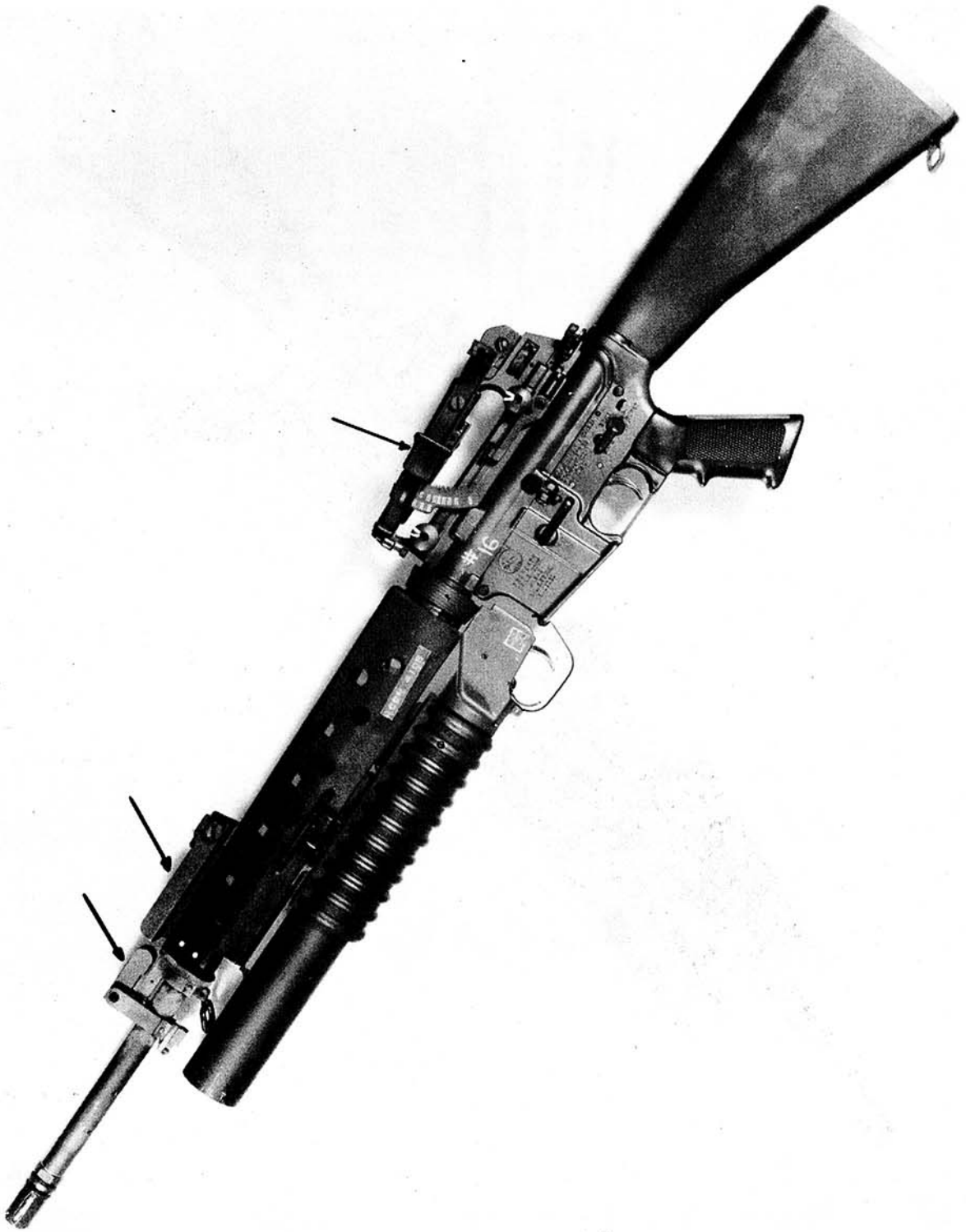


Figure 5. Showing left side view of Enhanced M16A2 rifle with M203 grenade launcher attached. The short-range launcher and front rifle sights are in the stowed position. The full range launcher sight, mounted on the carrying handle/rear sight assembly, is set at short range (50 meters).

Figure 6. Showing left side view of Enhanced M16A2 rifle with M203 grenade launcher attached. The full range launcher sight, mounted on the carrying handle/rear sight assembly is set at 150 meter range. At this point the launcher sight contacts the front clamp screw nut and prevents sight travel to maximum range (400 meters).

Figure 7. Showing right side view of standard M16A2 rifle equipped with night vision sight SU-87/PVS-4.

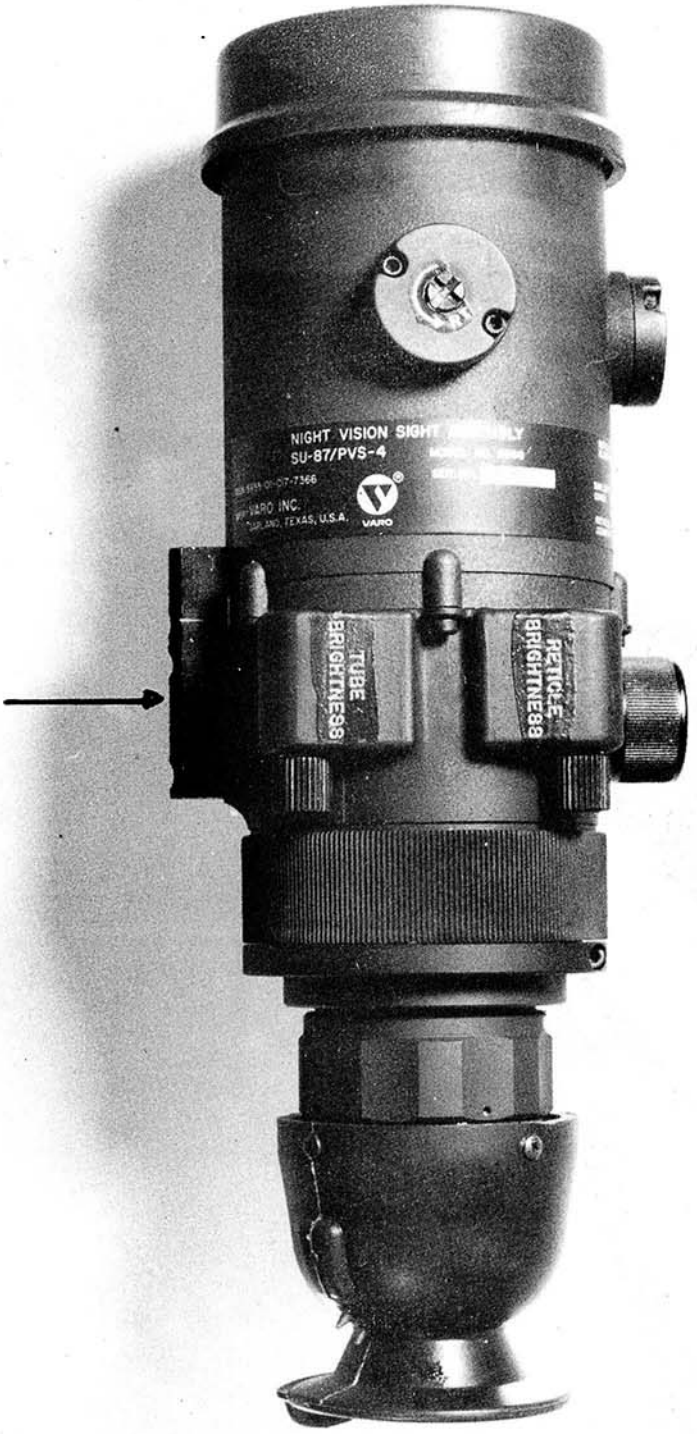


Figure 8. Showing left side view of night vision sight SU-87/PVS-4 with adapter base for use on standard M16A2 rifle upper receiver.

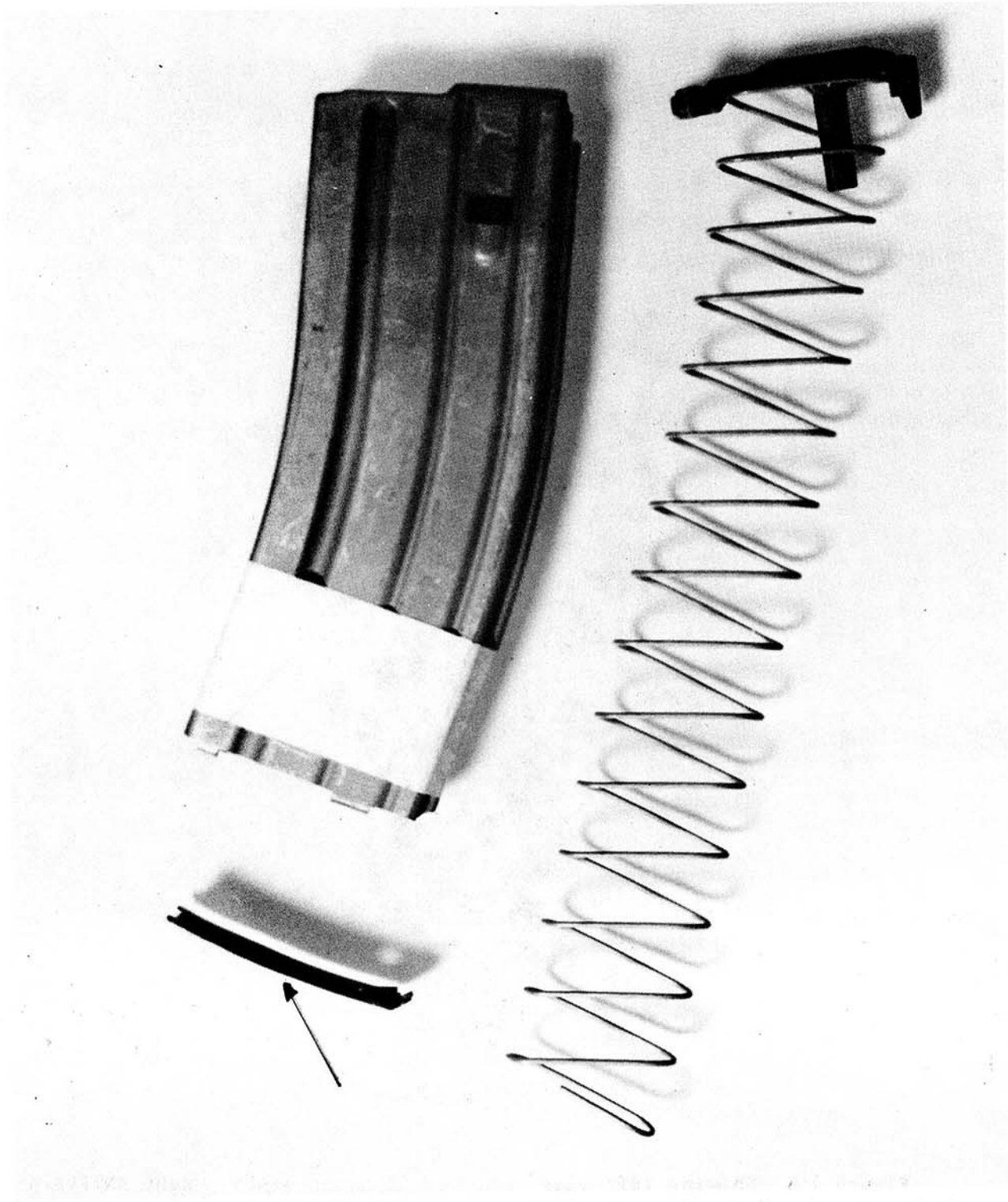


Figure 9. Showing left side view of 30-round magazine after unlocked-breech cookoff of M855 cartridge in Enhanced M16A2 rifle No. 3. The floor plate separated from the magazine body, releasing the follower and spring.

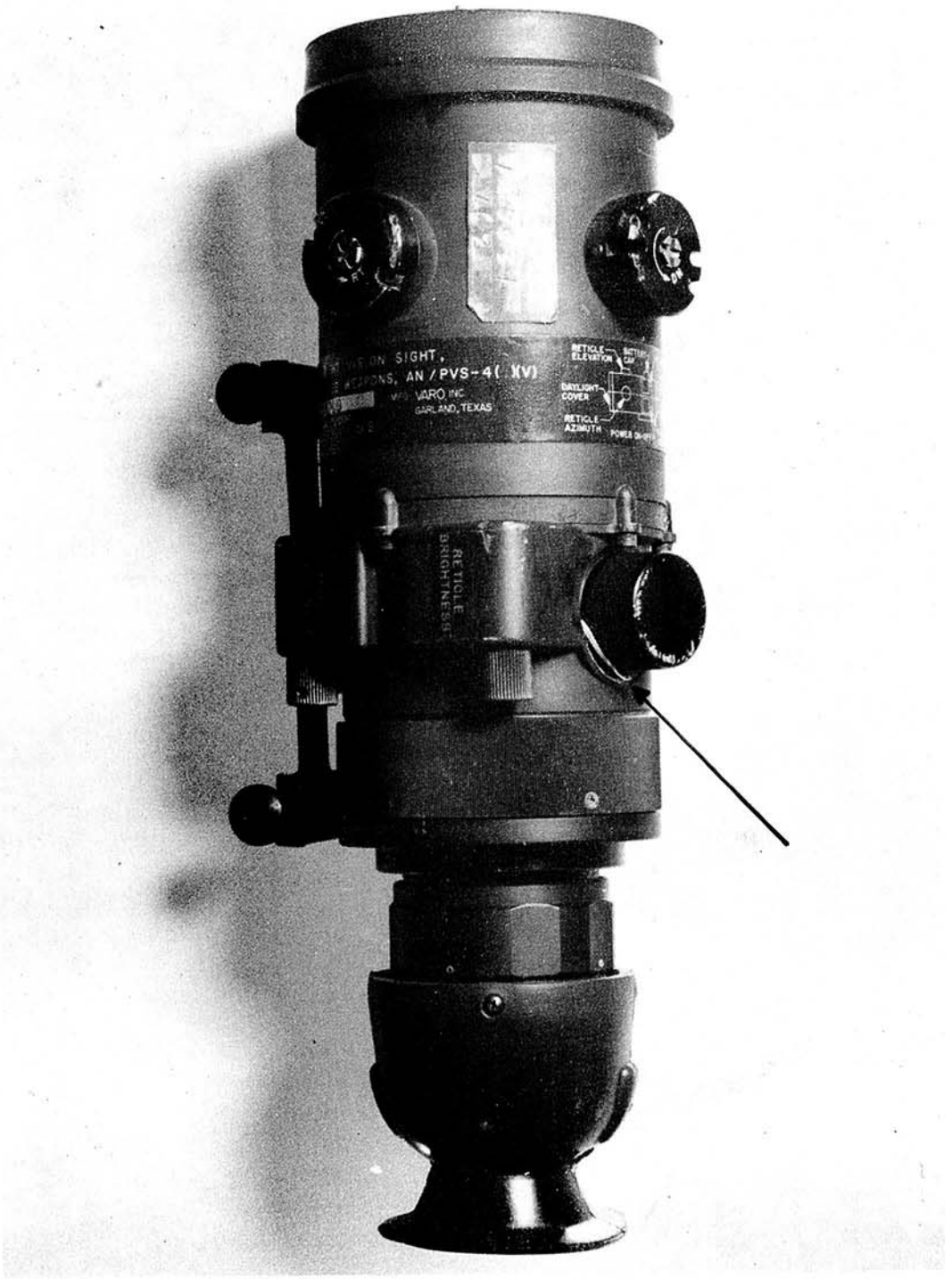


Figure 10. Showing left side/top view of night vision sight AN/PVS-4 after drop test done at -46 °C temperature from a height of 2.1 meters onto concrete. Sight was attached to Enhanced M16A2 rifle No. 17. Top side down drop orientation (second drop) caused intrusion of battery housing into the sight body. This caused fracturing of the front inner lens and rendered the sight inoperable.

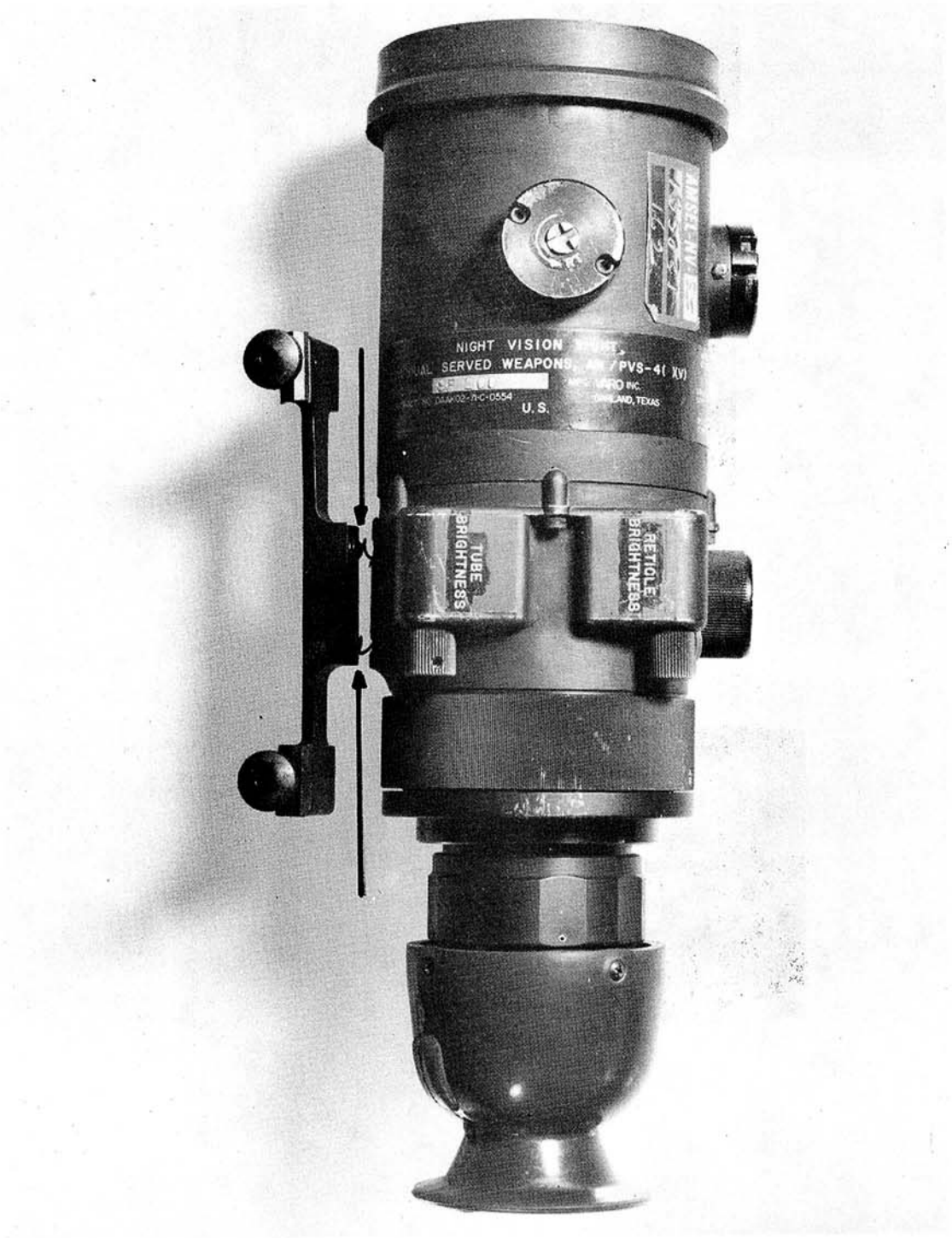


Figure 11. Showing left side view of night vision sight AN/PVS-4 after drop test was done at -46 °C temperature from a height of 2.1 meters onto concrete. Sight was attached to Enhanced M16A2 rifle No. 17. Left-side drop orientation (third drop) resulted in elongation of the thread inserts between base and sight.

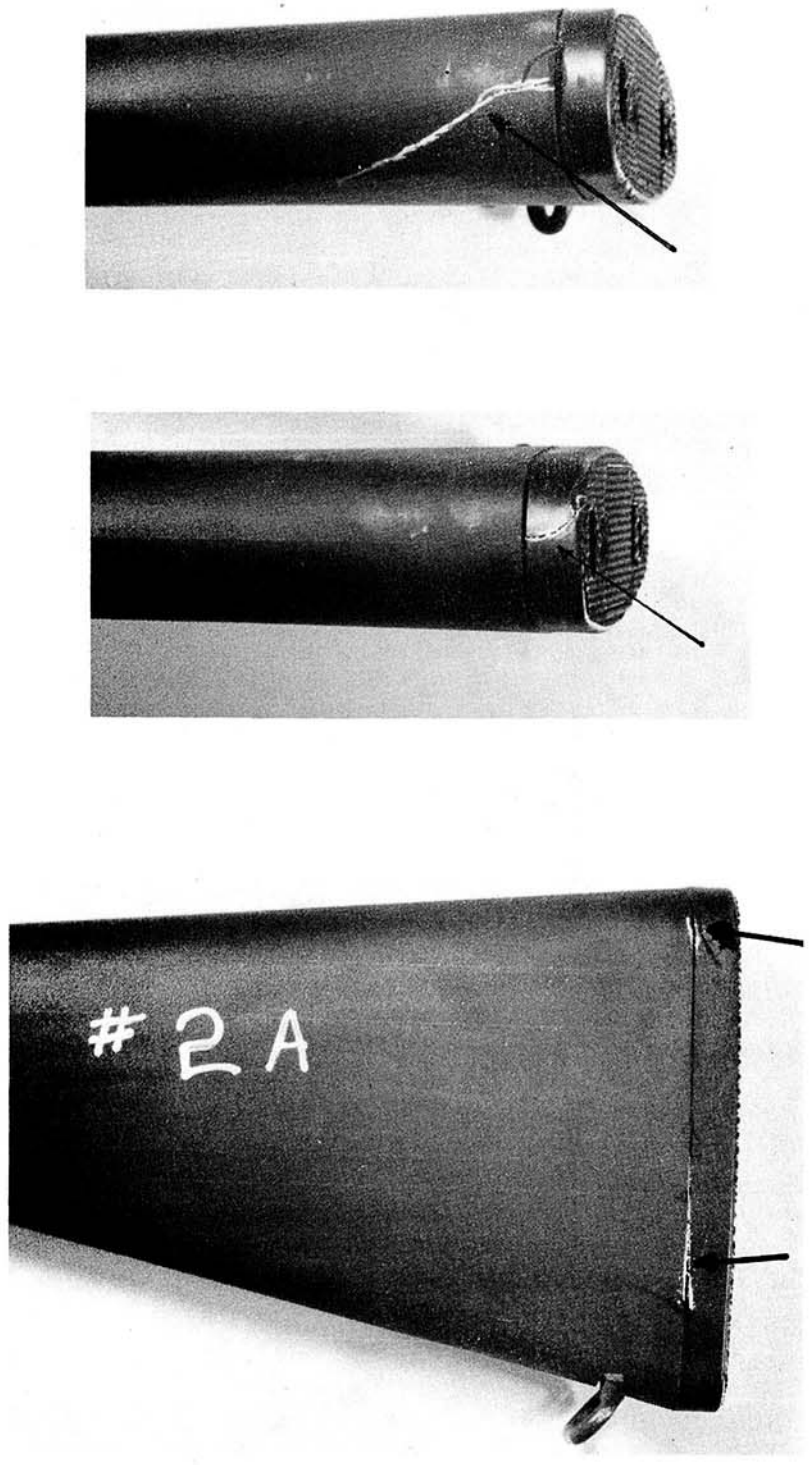


Figure 12. Showing buttstock damage afte 2.1 meter drop onto concrete at -46 °C temperature. Top view: Enhanced M16A2 rifle No. 17; Middle view: Enhanced M16A2 rifle No. 7; Bottom view: Standard M16A2 rifle No. 2A. All drops were in the butt-down orientation (sixth drop).

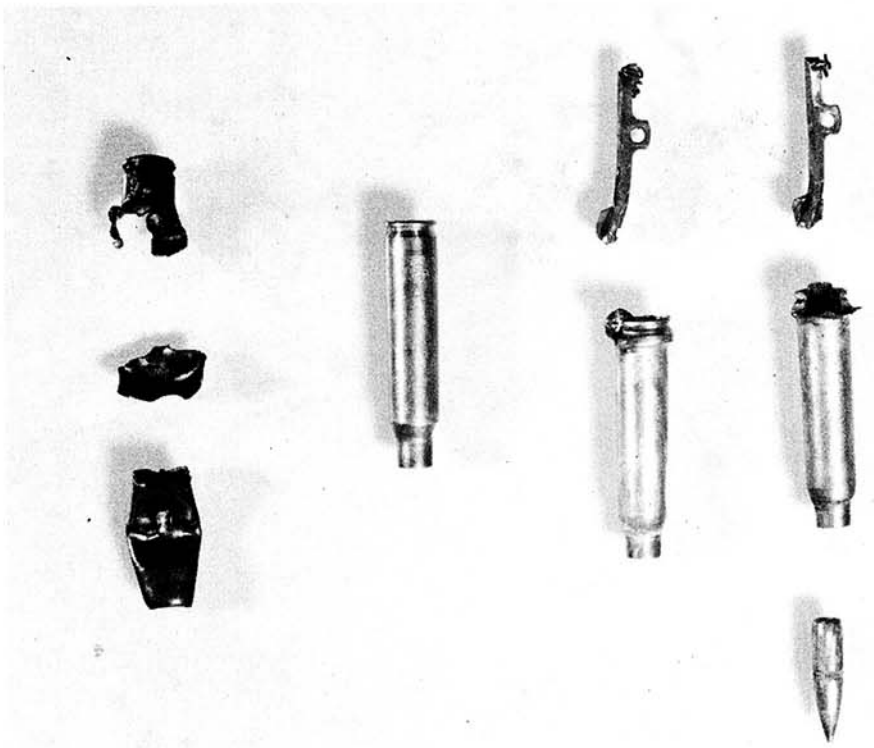
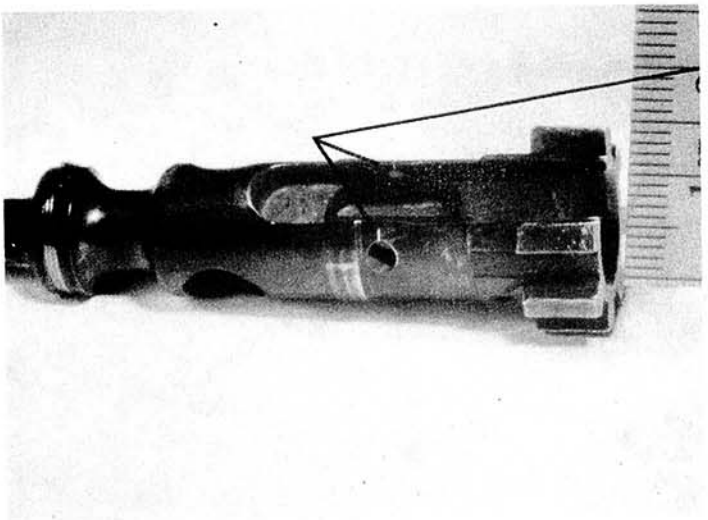


Figure 13. Showing results of sequential destructive testing of Enhanced M16A2 rifle No. 3. From left to right: ruptured cartridge case after cook off with bolt unlocked; fired case (no damage) after firing with bullet obstruction at muzzle of barrel; bent extractor and ruptured case after firing with 12 inches of mud in front end of bore; another bent extractor, ruptured case and projectile recovered from muzzle of barrel after firing with bore full of water.



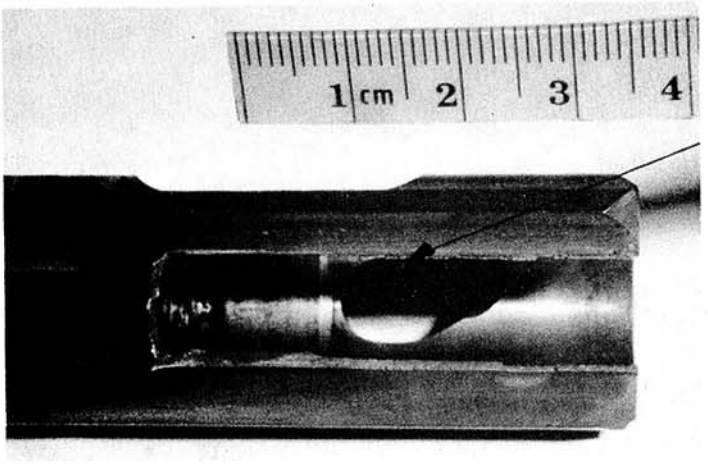


Figure 14. Showing cracking of extractor pin hole in bolt from Enhanced M16A2 rifle No. 3 (top view). Bottom of bolt carrier from same rifle (bottom view) showing location of broken out section. Both occurred after firing the rifle with water in the bore.

TEST ITEM DESIGN REVIEW

a. The Enhanced components tested in the evaluation consisted of a folding front sight assembly, removable carrying handle/rear sight assembly; and auxiliary, folding rear sight assembly. These components were attached to an upper receiver which was reconfigured to conform to the removable carrying handle.

b. Safety and durability.

(1) The upper receiver, which houses the barrel and breeching components of the rifle was found to be equal in terms of durability and safety to that of the standard M16A2 rifle, based on current tests of the Enhanced rifle and previous evaluations of M16A1 and M16A2 rifles. The slight distortion of the upper receiver due to various obstructed-bore firings did not cause cracking of that component.

(2) The durability of the carrying handle/rear sight assembly was compromised in several ways. The means of retaining this assembly to the upper receiver by finger-tightened knobs was insufficient to hold the two parts in assembly during even limited firings. If the carrying handle/sight assembly is dropped, and lands on one or both of the knobs, as occurred in testing, the pressed-in stud on which the knobs are threaded is driven out of its fully seated position. Subsequent reinstallation of the assembly will give the appearance of being firmly retained, but upon firing it will loosen because the studs will be reseated to their original position; thus the knobs and clamping plates will then be loose.

(3) The front sight design provides sufficient durability for the rigors of being dropped; however, the lack of a positive lock in the erected position allows the sight to be returned to a partially or completely stowed position whenever it is struck.

(4) The auxiliary, folding rear sight does not possess the requisite durability for a sight used on a military weapon. When the rifle is dropped with the sight erected, the sight is permanently distorted and partially disassembled from the upper receiver. In this state, reinstallation of the carrying handle/rear sight assembly cannot be accomplished without a change in weapon zero. The distorted auxiliary sight prevents correct seating of the carrying handle. The auxiliary rear sight can be damaged even when in its stowed position, protected by the carrying handle/rear sight assembly. The detent plungers which hold the auxiliary sight in position, when erected, slip out of engagement with the sight and prevent its operation. This occurred during testing.

(5) Heating of the barrel by firing did not cause distortion of the front sight detent plunger spring. However, the temperature of the front sight after only 60-rounds firing burns the fingers when erecting/stowing the sight.

(c) Accuracy and Dispersion.

(1) Since the amount of time and funds available precluded designing, constructing, and testing the precision fixtures necessary to determine individual component movements as a result of drop testing, only barrel bore straightness measurements were taken. These measurements, coupled with any changes in shot groups center-of-impact found during accuracy firings, were used to determine if the system was degraded by being dropped. Table 1 presents the summarized data, which are contained in their entirety in Enclosures 2 and 3.

(2) Both the standard M16A2 rifle and the various configuration of the Enhanced version of that rifle showed changes in shot group center-of-impact as a result of being dropped. The dispersion of the shot groupings was not adversely affected.

(3) The differences noted in dispersion when firing the Enhanced rifle with both carrying handle/rear sight assembly, and the auxiliary rear sight (i.e., 3.57 versus 4.58 in.) is indicative of the effect that an enlarged rear aperture has in decreasing shooter ability to accurately and constantly maintain sight alinement. Also, the 2.3-inch change in vertical center-of-impact between the two rear sights fired with a common front sight, indicates that any weapon with this type of dual sight capability must be zeroed first with the auxiliary sight (elevation adjusted in the front sight), then the primary rear sight can be zeroed. This was not done in this test.

(4) Use of a Night Vision Sight on the Enhanced rifle does not degrade dispersion of the shot-group. Both configurations (i.e., carrying handle/ rear sight assembly fired in daylight, and night vision sight fired in darkness) produced 4.3-inch extreme spread averages.

(5) The measurement of bore straightness for use as a gage in qualifying the cause of changes in shot-group center-of-impact, appears not to generate conclusive results.

TABLE 1. SUMMARY OF SYSTEM ACCURACY DATA

Wpn.ID SN	Test No.	Barrel Total Bend, in. Before	Barrel Total Bend, in. After	Type Sight	Center-of-Impact, in. Horizontal BF	Horizontal AF	Horizontal Chg	Vertical BF	Vertical AF	Vertical Chg	ES BF	ES AF
6061058	2A	0.0073	0.0045	a_	1.91	2.40	0.49	7.45	9.47	2.02	4.39	4.21
6095266	2	.0045	.0022	a_	2.78	7.80	5.02	8.40	10.93	2.53	3.74	4.03
6095495	7	.0036	.0022	a_	-0.45	1.31	1.76	6.97	8.59	1.62	3.57	3.37
				b_	-0.01	-	-	4.66	-	-	4.58	-
6107918	12	.0022	.0036	a_	-1.05	0.51	1.56	9.83	10.96	1.13	4.29	3.36
				c_	-1.80	-	-	-0.01	-	-	4.30	-
6109088	17	.0022	.0020	a_	-4.14	-6.79	-2.65	12.34	8.89	-3.45	3.83	2.68

[a]Standard full range rear sight using long range aperture.
[b]Auxiliary rear sight.
[c]Night vision sight AN/PVS-4, fired in darkened range with front cover of sight removed.

Note: Rifle 2A is a standard M16A2. All other rifles are the Enhanced variety. All rifles were dropped once in each of six orientations, except No. 12 which was dropped in only the first three orientations. The orientations were: (1) top side up, (2) upside down, (3) right side up, (4) left side up, (5) muzzle end down, and (6) butt end down. Drop height was 2.1 meters (5 ft.) onto a flat concrete floor. Test temperature was -46 °C (-50 °F).

d. Human Factors.

(1) The amount of torque that can be applied to thumbscrews is inadequate to retain the sight in its present configuration. It appears that if the frictional surface area beneath the head of the knobs is increased relative to its contact with the clamping plates, an improvement in retention may occur. Also, if the presently allowed longitudinal free movement of the mount base when set on top of the upper receiver is eliminated (it is approximately 0.1 inch), this would assist in preventing loosening of the mount (especially when a heavy night vision sight is installed).

(2) The lower mounting height of the Night Vision Sight on the Enhanced M16A2 rifle, while providing a more positive head-to-stock contact, makes retracting the charging handle difficult. When attempting to fire the night vision sighted rifle while wearing the personal protective mask, lowering of the sight may prevent sighting of the rifle. (This has not been confirmed by actual test.)

(3) The need to lower the front sight when using the night vision sight was investigated during accuracy and dispersion firings. Although there was an observable decrease in light intensity with the front sight erected, the clarity of the observed target image was not degraded to the point of adversely affecting visual acquisition of the target or accuracy and dispersion of the weapon.

(4) Handling of a hot front sight to raise or lower it after the weapon has been fired, is not a desirable characteristic because of the possibility of hand injury.

(5) The position of the night vision sight, when mounted on the Enhanced M16A2 rifle is too far forward. This was apparently caused by the addition of 0.5 inch to the buttstock length of the M16A2 rifle. Personnel with short arms and necks experience difficulty in pressing the diopter open with the face while maintaining trigger contact and position of the buttplate on the shoulder.

e. Design Incompatability

(1) The ladder sight attached to the M203 grenade launcher uses the rifle front sight to aline the launcher on target. The increase in height of the rifle front sight may cause unacceptable accuracy loss. Firing has not been done to confirm this apparent condition.

(2) The 400-meters range quadrant sight for the M203 grenade launcher, which attaches to the carrying handle of the rifle, is prevented from being adjusted beyond 150-meter range by the front locking knob of the detachable carrying handle.

f. Alternate Designs and Required Tests

(1) The overall usability and need of a removable carrying handle is questionable. Nonstandard optical sights have, since the inception of the AR-15 rifle design, been successfully mounted on the fixed carrying handle.

(2) The overall usability of a folding front sight is questionable. Testing has demonstrated that the perceived visual interference from a fixed front sight being in the visual plane of an optical sight is either nonexistant or of minor interference during target acquisition and firing.

(3) If no change in design to the basic M16A2 rifle is made, then testing of the two sighting systems used with the M203 grenade launcher can be eliminated. If either the front sight or carrying handle are modified, then full range sight calibration verification tests of one or both sights must be done. Changes found to be necessary to either of the grenade launcher sights could significantly increase overall cost of the Rifle Enhancement Program.

(4) If the detachable carrying handle/rear sight assembly continues to be a part of the Enhanced rifle program, then parallel test of any optical system must be made with those sights mounted on standard M16A2 rifles. This is necessary to evaluate life cycle cost tradeoffs and unequivically determine if all of the various items incorporated in the current Enhancement design are necessary, or desirable.

(5) In order to eliminate the problems associated with an on-weapon auxiliary rear sight, that sight should be incorporated as part of either the mounting system or optical sight attachment to the rifle. This has already been done on one of the optical sight candidates recently tested at Fort Benning, GA.

(6) Before any large-scale procurement of optical sights for general military issue and use is made, the following should be done:

(a) A requirements document should be prepared by TRADOC, spelling out what the user requires and desires in reliability, availability, and maintainability (RAM), as well as what increase in performance is required to justify probable life cycle cost increases to the weapon.

(b) Sufficient quantities of the sights and/or weapons should be tested at the tropical, Arctic, and desert test centers so that a concise evaluation of the usability of the optics can be made prior to a large procurement. This type of testing is necessary, since there are many presently unknown or guessed-at answers to questions concerning real-life useability of any optical sight for other than special-purpose issue (e.g., long range sniper firing).

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