1-735086 7-739498
2-737114 8-745075
3-737142 9-745214
4-737641 10-748046
5-737993 11-749967
6-738329 12-168486

AD

RDTGE Project No. Not Available
USATECON Project No. 8-7-0230-04

Wilson

762573

TEST PLAN ON

PRODUCT IMPROVEMENT TEST OF

REDESIGNED BUFFER FOR M16A1 RIFLE

BY

ALLAN WILSON

JULY 1967

196 IMR TW 16001 D
196 B LC 13081 C
193 IMR TW 18166 B
193 B LC 13177 A

ABERDEEN PROVING GROUND

ABERDEEN PROVING GROUND, MARYLAND

RDT&E PROJECT NO. NOT AVAILABLE

USATECOM PROJECT NO. 8-7-0230-04

TEST PLAN ON

PRODUCT IMPROVEMENT TEST

OF

REDESIGNED BUFFER FOR M16A1 RIFLE

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JULY 1967

ABERDEEN PROVING GROUND

ABERDEEN PROVING GROUND, MARYLAND
21005

TABLE OF CONTENTS

SECTION 1. INTRODUCTION

1.1 BACKGROUND

During the progressive development and production of the AR-15 rifle to the present configuration and designation as the standard M16A1 rifle, the cyclic rate of fire of the weapon steadily increased from approximately 750 rds per minute to rates in excess of 900 rds per minute. The higher cyclic rates of fire were often, although not always, associated with an increase in malfunction rate and a decrease in parts life. Functioning tests indicated a relationship between the higher cyclic rates of fire and certain types of cartridge propellant, particularly ball propellant.

A joint effort between Frankford Arsenal, Springfield Armory, and Colt Firearms was initiated in 1966 to develop a new buffer mechanism which would accommodate the variations in cartridge propellant type while maintaining a cyclic rate of fire between 650 and 850 rounds per minute. The joint effort resulted in a redesigned buffer which was introduced into production of M16A1 rifles in 1967 as a product-improved item. Concurrently with the introduction of the redesigned buffer, cartridge production was expanded to include a number of new cartridge producers as well as several new propellant-projectile combinations of ammunition.

In order to confirm that the redesigned buffer would be suitable for field issue and compatible with four basic types of ammunition, USATECOM directed that a product-improvement test of the redesigned buffer be conducted at Aberdeen Proving Ground.

1.2 DESCRIPTION OF MATERIEL

The redesigned buffer, referred to in the technical manual as the action spring guide assembly, is composed of a one-piece cylindrical alloy body within which are assembled an alloy spacer and five cylindrical steel weights (275 grains each) separated by thin neoprene pads. The spacer and weights are retained in the buffer by a solid plastic shock absorbing end cap and split pin. The external configuration of the redesigned buffer is similar to the standard buffer, and retrofit is accomplished without modification to the rifle; the original action spring and lower receiver extension accept both the redesigned and standard buffer.

The buffer absorbs the energy of the recoiling bolt carrier through inertia of the buffer assembly and by compression of the action spring which incloses the buffer. The internal assembly of the redesigned buffer provides a delayed forward impulse to the bolt carrier at the moment of bolt carrier closure. The internal buffer weights are in a

rearward position as the buffer moves forward, after recoil, and the weights move forward approximately 0.1 inch when the bolt carrier and buffer stop.

1.3 TEST OBJECTIVES

The test objectives are:

a. To compare cyclic rates of fire using the old and new buffers.

b. To compare bolt rebound upon closing, using the old and new buffers.

The test objectives are to be accomplished firing four different types of 5.56-mm ammunition; both extruded grain and ball propellant with both tracer and ball projectiles.

SECTION 2. DETAILS OF TEST

2.1 INTRODUCTION

2.1.1 Firing Schedule

The schedule in Table 2.1-1 is designed to permit an evaluation of the effects of firing four types of ammunition while employing standard and redesigned buffers in twelve M16A1 rifles of current production. Six of the weapons are fired with approximately equal amounts of all four types of ammunition while three weapons are fired only with ball-projectile ammunition and the remaining three weapons are fired only with tracer-projectile ammunition. Detailed firing schedules are shown in each subtest.

Table 2.1-1. Firing Schedule

Ammunition Type: A - M193 with ball propellant LC12177
B - M193 with 8208 propellant TW18166
C - M196 with ball propellant LC12081
D - M196 with 8208 propellant TW18001

Ref. Par. No.	Test Name	Rds Fired per Gun	Ammunition Quantity and Type, per Gun Gun No. 1-6	7-9	10-12
2.3	Cyclic Rate of Fire Test	160	40, each type	80A, 80B	80C, 80D
2.4	High Temp/High Hum	1120	280, each type	560A, 560B	560C, 560D
2.5	Fouling Test	1760	440, each type	880A, 880B	880C, 880D
2.6	Low Temp	3200	800, each type	1600A, 1600B	1600C, 1600D
2.7	Function Test	2080	520, each type	-- --	-- --
2.8	Accelerated Rate Test	560	--- ---	280A, 280B	280C, 280D
2.9	Dynamic Dust	560	--- ---	280A, 280B	280C, 280D
2.10	Salt Water Immersion	300	See Table 2.10-1.		

2.1.2 Maintenance

Each weapon is disassembled, cleaned and lubricated following the

instructions in TM 9-1005-249-14 (Ref 1) after approximately each 600 rounds of firing as well as prior to the initiation of any subtest, with the exception of the extended firing in par 2.4 and 2.5. Also, MIL-L-46000A is to be used in all tests except in par 2.4 and 2.5 where MIL-L-14107A is to be used (Ref 7).

2.1.3 Standard Buffers

Twelve standard buffers from previous production are employed in this test along with the redesigned buffers. The standard buffers are to be removed from XM16E1 rifles providing that none of the standard buffers have been fired more than 250 rounds.

2.1.4 Buffer and Magazine Identification

During the initial inspection test two buffers, one redesigned model and one standard model, are assigned to each of the twelve test weapons. Each pair of buffers is identified with a serial number matching the serial number of the selected rifle. Matching-number buffers are then exchanged periodically in the same rifle throughout the firing phases of each test. The exchange periods are identified in the individual subtest firing schedules.

All test magazines are also numbered to insure that a set of seven magazines (standard issue with each rifle) remains with the same rifle throughout test.

2.2 INSPECTION

2.2.1 Objective

To determine that the test weapons have been received in proper condition for test and to determine the physical characteristics of the standard and redesigned buffers.

2.2.2 Criteria

The test items shall be suitable for test and free of apparent defects.

2.2.3 Method

The weapons are disassembled, cleaned and lubricated as specified in TM 9-1005-249-14. Rifle bores are inspected and measured, headspace and firing pin protrusion determined, and the chambers tested for chrome plating. Weights and measurements of the standard and redesigned buffers are recorded. At the conclusion of all firing tests all buffers are disassembled and inspected.

2.2.4 Data Required

Inspection data as specified in par 2.2.3 plus photographs of assembled and disassembled buffers.

2.3 CYCLIC RATE OF FIRE TEST

2.3.1 Objective

To measure the cyclic rate of fire of the test weapons during normal ambient conditions.

2.3.2 Criteria

The cyclic rate of fire for each 20-round burst shall be within 650 to 850 rounds per minute (par 10.2.1, ref 3).

2.3.3 Method

Wherever cyclic rates of fire are required, either initially in this subtest or during the firing in any other subtest (except par 2.8), the schedule in Table 2.3-1 is followed.

Table 2.3-1. Cyclic Rate Schedule

Each trial is a 20-round continuous burst

Trial No.[b]	Buffer	Ammunition Type[a] Gun No. 1-3	4-6	7-9	10-12
1	Std.	A	D	A	C
2	Redesigned	A	D	A	C
3	Std.	B	C	B	D
4	Redesigned	B	C	B	D
5	Std.	C	B	A	C
6	Redesigned	C	B	A	C
7	Std.	D	A	B	D
8	Redesigned	D	A	B	D

a. See explanation, Table 2.1-1.
b. A minimum cooling time of 15 minutes is observed between each trial.

2.3.4 Data Required

All cyclic rate of fire data for all subtests will be summarized and presented graphically or in a single table, whichever is more practicable. Detailed data will be placed in the appendix.

2.4 HIGH TEMPERATURE/HIGH HUMIDITY

2.4.1 Objective

a. To evaluate the performance of the M16A1 rifle with a redesigned buffer when firing various types of ammunition during high temperature/high humidity conditions.

b. To compare the above performance with similar firings employing the standard buffer.

2.4.2 Criteria

a. The cyclic rate of fire for each 20-round burst shall be within 650 to 850 rounds per minute (par 10.2.1, Ref 3).

b. The total number of malfunctions and unserviceable parts for all subtests except par 2.9 through 2.12 shall not exceed the specifications of Table 1 in par 10.3, ref 3.

2.4.3 Method

The method of test is described in par 3.3.1c, IP 20-20, TECP 700-700, dated 11 April 1966, except that the high temperature is +155°F and daily firing is conducted only after at least four hours of continuous high temperature conditioning.

The firing schedule in Table 2.4-1 is followed.

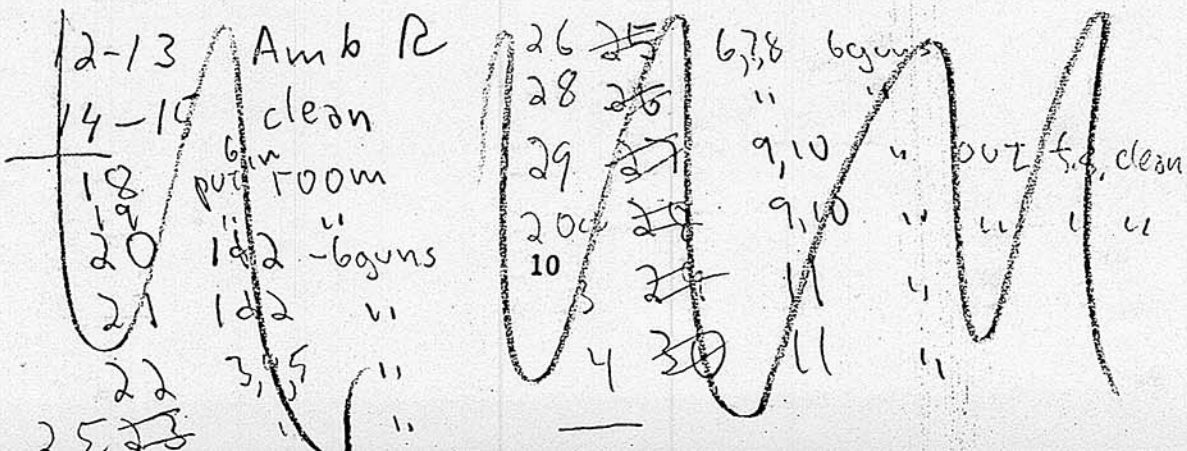
Table 2.4-1. High Temperature/High Humidity Schedule

Trial No.	Buffer	Rds. Fired Per Gun[b]	Ammunition Type[a] Gun No. 1-6	7-9	10-12
[c]1	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
[c]2	Std.	80	A	A	C
[d]3	Redesigned	80	B	A	C
[d]4	Std.	80	C	B	D
[d]5	Redesigned	80	D	B	D
[e]6	Std.	80	D	A	C
[e]7	Redesigned	80	C	A	C
[e]8	Std.	80	B	B	D
[f]9	Redesigned	80	A	B	D
[f]10	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
[g]11	Std. and Redesigned	160	Repeat cyclic rate of fire test.		

[a]See explanation, Table 2.1-1.
[b]Except for trials No. 1, 10 and 11, each trial is divided equally into automatic (3-round bursts) and semiautomatic firing.
[c]After 48 hours of conditioning.
[d]After 96 hours of conditioning.
[e]After 168 hours of conditioning.
[f]After 216 hours of conditioning.
[g]Fired under normal ambient conditions following cleaning and lubrication.

2.4.4 Data Required

The functioning data are to be summarized in tabular form.



2.5 FOULING TEST

2.5.1 Objective

a. To evaluate the performance of the M16A1 rifle with a redesigned buffer when firing various types of ammunition under conditions presumed to result in increased propellant fouling.

b. To compare the above performance with similar firings employing the standard buffer.

2.5.2 Criteria

Same as par 2.4.2.

2.5.3 Method

The weapons and ammunition are subjected to +20°F for a minimum of 12 hours prior to firing and between firing cycles. Each of the weapons is fired approximately 300 rounds on each of five days. Firing is alternated between semiautomatic and automatic fire each 20 rounds. Automatic fire is accomplished in bursts of about 3 rounds. The weapons are disassembled, cleaned and lubricated with the prescribed lubricant prior to storage at +20°F but no cleaning or lubrication is accomplished during the test.

The firing schedule in Table 2.5-1 is followed.

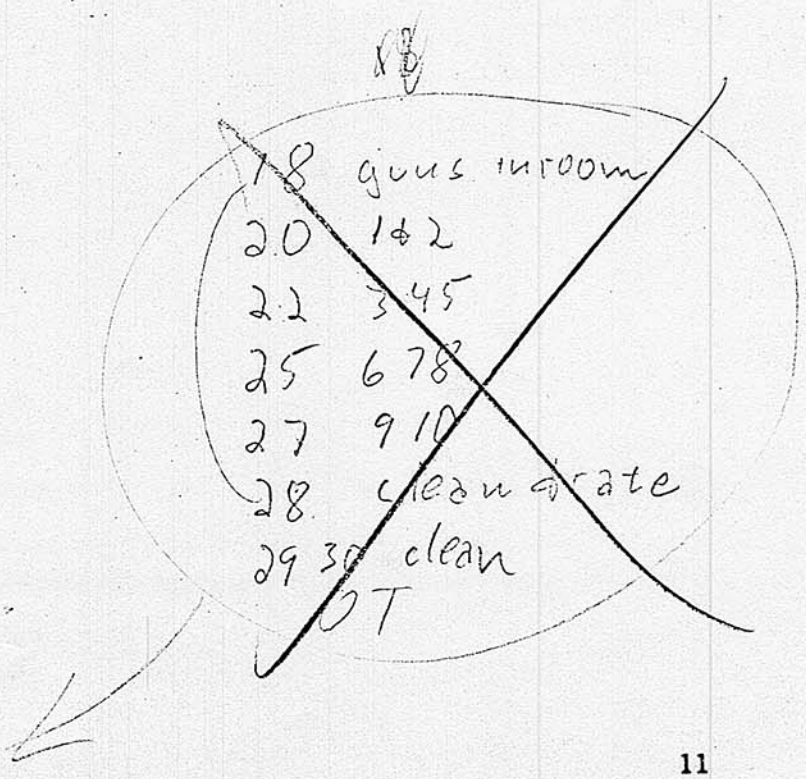


Table 2.5-1. Fouling Test Schedule

Trial No.	Buffer	Rds. Fired Per Gun	Ammunition Type[a] Gun No. 1-6	7-9	10-12
[b] 1	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
[b] 2	Std.	140	A	A	C
[c] 3	Redesigned	140	B	A	C
[c] 4	Std.	140	C	B	D
[d] 5	Redesigned	140	D	B	D
[d] 6	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
[e] 7	Std.	140	D	A	C
[e] 8	Redesigned	140	C	A	C
[f] 9	Std.	140	B	B	D
[f] 10	Redesigned	140	A	B	D
[f] 11	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
[g] 12	Std. and Redesigned	160	Repeat cyclic rate of fire test.		

[a] See explanation, Table 2.1-1.
[b] After 12 hours of conditioning.
[c] After 36 hours of conditioning.
[d] After 60 hours of conditioning.
[e] After 84 hours of conditioning.
[f] After 108 hours of conditioning.
[g] Fired under normal ambient conditions following cleaning and lubrication.

2.5.4 Data Required

The functioning data are to be summarized in tabular form.

2.6 LOW TEMPERATURE

2.6.1 Objective

a. To evaluate the performance of the M16A1 rifle with a redesigned buffer when firing various types of ammunition during low temperature conditions.

b. To compare the above performance with similar firings employing the standard buffer.

2.6.2 Criteria

Same as par 2.4.2.

2.6.3 Method

The method of test is described in par 3.3.1b, IP 20-20, TECP 700-700, dated 11 April 1966.

The firing schedule is contained in Table 2.6-1.

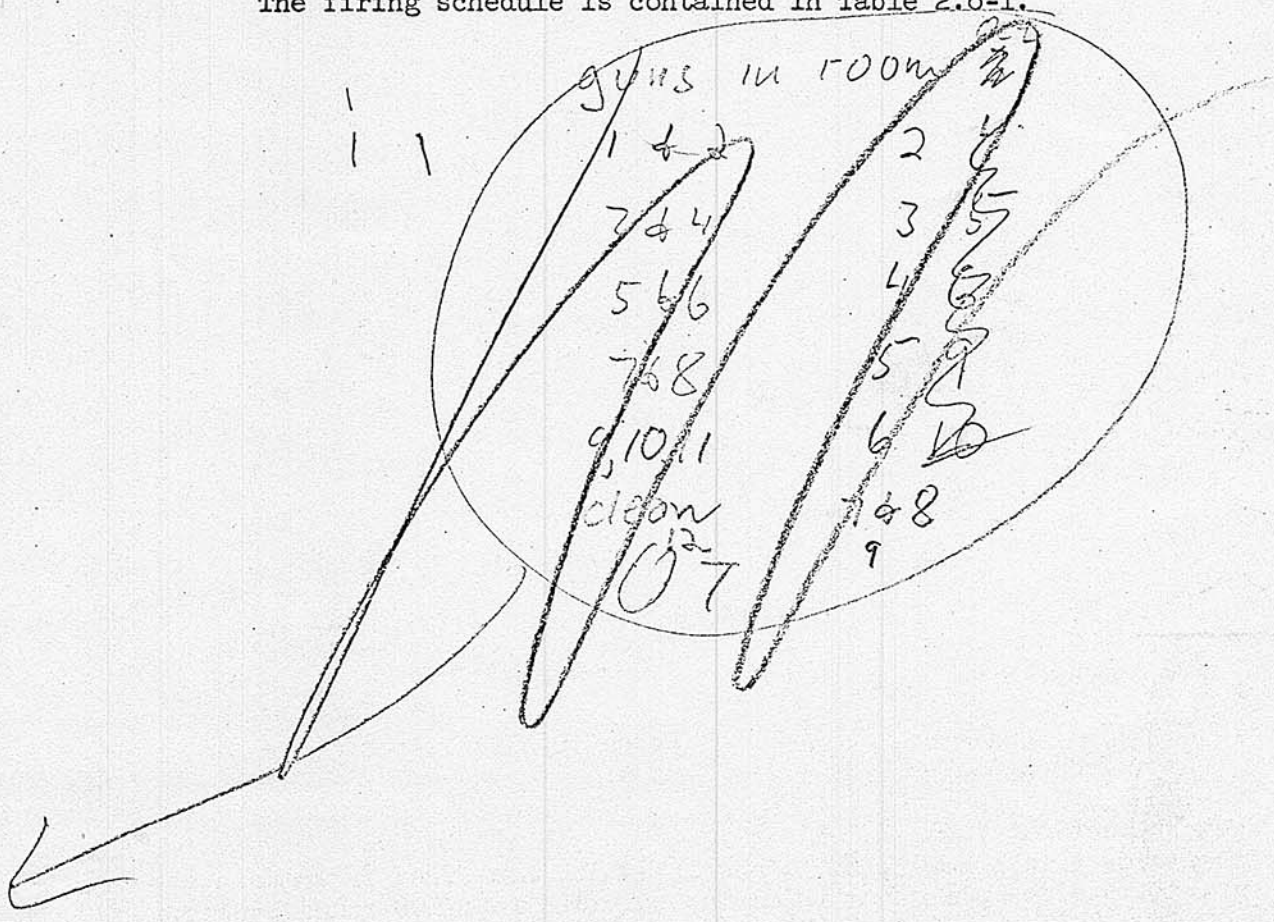


Table 2.6-1. Low Temperature Schedule

Trial No.[b]	Buffer	Rds. Fired Per Gun[c]	Ammunition Type[a] Gun No. 1-6	7-9	10-12
1	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
2	Std.	200	A	A	C
3	Redesigned	200	B	A	C
4	Std.	200	C	B	D
5	Redesigned	200	D	B	D
6	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
7	Std.	200	D	A	C
8	Redesigned	200	C	A	C
9	Std.	200	B	B	D
10	Redesigned	200	A	B	D
~~11~~	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
~~12~~	Std.	200	A	A	C
~~13~~	Redesigned	200	B	A	C
~~14~~	Std.	200	C	B	D
~~15~~	Redesigned	200	D	B	D
16	Std. and Redesigned	160	Repeat cyclic rate of fire test.		
17[d]	Std. and Redesigned	160	Repeat cyclic rate of fire test.		

[a]See explanation, Table 2.1-1.
[b]Except for trials No. 1, 6, 11 and 16--which are fired in an uninterrupted exercise--all other trials are divided into 100-round cycles, 2 hours apart. A two-hour (minimum) conditioning period is also

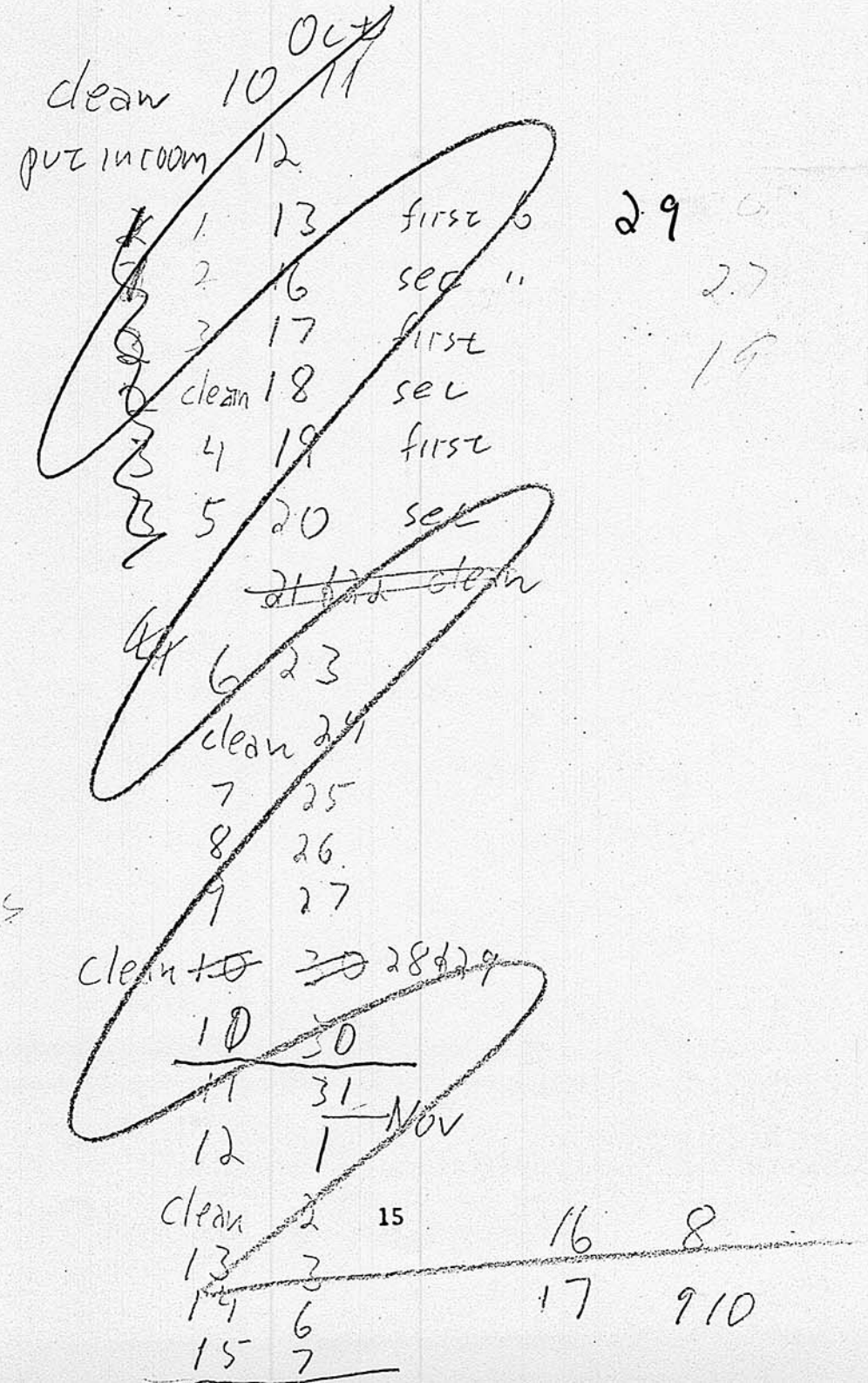
observed between each 200-round trial.

[c] Weapons are removed from the chamber for maintenance after trial No. 3, 6, 9 and 12; no other lubrication or maintenance is provided.

[d] Fired under normal ambient conditions following cleaning and lubrication.

2.6.4 Data Required

The functioning data are to be summarized in tabular form.



2.7 FUNCTION TEST

2.7.1 Objective

a. To evaluate the performance of the M16A1 rifle with a redesigned buffer when firing various types of ammunition in a number of hand-held positions.

b. To compare the above performance with similar firings employing the standard buffer.

2.7.2 Criteria

Same as par 2.4.2.

2.7.3 Method

The firing positions are identified in par 3.3.10i, j, m, n; IP 20-20, TECP 700-700, 11 April 66. Rifles No. 1 through 6 only are fired.

The firing schedule is contained in Table 2.7-1.

Table 2.7-1. Function Test Schedule

Trial No.	Buffer	Firing Position[b]	Rds. Fired Per Gun[c]	Ammunition Type[a] Gun No. 1-6
1	Std.	i	40	A
2	Redesigned	i	40	B
3	Std.	i	40	C
4	Redesigned	i	40	D
5	Std.	i	40	D
6	Redesigned	i	40	C
7	Std.	i	40	B
8	Redesigned	i	40	A
9	Std. and Redesigned	i	160	Repeat cyclic rate of fire test.
10	Disassemble, clean and lubricate.			
11-20	Repeat trials 1 - 10 in position j.			
21-30	Repeat trials 1 - 10 in position m.			
31-40	Repeat trials 1 - 10 in position n.			
41	Std. and Redesigned	Normal	160	Repeat cyclic rate of fire test.

[a]See explanation, Table 2.1-1.
[b]As identified in par 3.3.10, IP 20-20, TECP 700-700.
[c]Alternately fired automatically and semiautomatically each 20 rounds.

2.7.4 Data Required

The functioning data are to be summarized in tabular form.

2.8 ACCELERATED RATE TEST

2.8.1 Objective

To determine the effect on cyclic rate of fire of the M16A1 rifle as a result of firing 140 rounds as rapidly as possible (seven 20-round magazines are issued with each rifle).

2.8.2 Criteria

Same as par 2.3.2.

2.8.3 Method

Cyclic rates of fire are recorded for each 20-round magazine. Rifles No. 7 through 12 only are fired. The firing schedule is contained in table 2.8-1.

Table 2.8-1. Accelerated Rate Schedule

Trial No.[b]	Buffer	Rds. Fired Per Gun[c]	Ammunition Type[a] Gun No. 7-9	Gun No. 10-12
1	Std.	140	A	C
2	Redesigned	140	A	C
3	Std.	140	B	D
4	Redesigned	140	B	D

[a]See explanation, Table 2.1-1.
[b]A minimum cooling period of 15 minutes is observed between trials.
[c]All rounds are fired automatically in 20-round bursts, attempting to fire the 140 rounds as rapidly as possible.

2.8.4 Data Required

Same as par 2.3.4.

2.9 DYNAMIC DUST TEST

2.9.1 Objective

a. To evaluate the performance of the M16A1 rifle with a redesigned buffer when firing various types of ammunition during a severe dust environment.

b. To compare the above performance with similar firings employing the standard buffer.

2.9.2 Criteria

a. No stoppages are permitted during firing except stoppages which may be immediately cleared by use of the charging handle, bolt closure device, or by the removal and insertion of a magazine.

b. No more than one permitted stoppage, as defined above, shall occur during the firing of each full magazine. The criteria applies individually to each 20-round magazine complement irrespective of the ratio of total stoppages to total rounds fired in the test.

2.9.3 Method

The method of test is described in par 2.11.2a of ref 2. Rifles No. 7 through 12 only are fired.

The firing schedule is contained in Table 2.9-1.

Table 2.9-1. Dynamic Dust Test Schedule

Trial No.[b]	Buffer	Rds. Fired Per Gun[c]	Ammunition Type[a] Gun No. 7-9	Gun No. 10-12
1	Std.	140	A	C
2	Redesigned	140	A	C
3	Std.	140	B	D
4	Redesigned	140	B	D

[a] See explanation, Table 2.1-1.
[b] The weapons are cleaned and lubricated at the beginning of test and after each trial.
[c] The cyclic rate of fire is measured during the firing of the first, third and final magazine in each trial.

2.9.4 Data Required

The functioning data are to be summarized in tabular form.

2.10 SALT WATER IMMERSION

2.10.1 Objective

To evaluate the performance of M16A1 rifle with a redesigned buffer when firing various types of ammunition during high temperature/high humidity conditions following salt water immersion.

2.10.2 Criteria

Same as par 2.9.2.

2.10.3 Method

The method of test is described in par 3.3.5, IP 20-20, TECP 700-700, 11 April 1966.

The firing schedule is contained in table 2.10-1.

Table 2.10-1. Salt Water Immersion Test Schedule

Trial No.	Buffer	Rds. Fired Per Gun[b]	Ammunition Type[a] Gun No. 1-3	4-6	7-9	10-12
1	Redesigned	300	A	C	B	D

[a]See explanation, Table 2.1-1.
[b]The cyclic rate of fire is measured for one 20-round burst each firing day.

2.10.4 Data Required

The functioning data are to be summarized in tabular form.

2.11 KINEMATICS

2.11.1 Objective

To obtain basic kinematic data comparing the redesigned and standard buffers when firing various lots of ammunition in the M16A1 rifle.

2.11.2 Criteria

For information purposes only.

2.11.3 Method + TEC chg.

The basic method of test is described in ref 4. However, the test procedure is investigatory in nature and may be directed by the project engineer to evaluate specific problem areas encountered in other subtests. As a minimum, time displacement curves are obtained to illustrate the firing sequence and to evaluate buffer movement. One weapon, equipped with the latest product-improved components is tested with a standard and redesigned buffer. Firing is conducted with each of the four types of test ammunition.

2.11.4 Data Required

Pertinent time-displacement curves will be reproduced and included in the final report.

2.12 AMMUNITION CHARACTERISTICS

2.12.1 Objective

To determine the characteristics of the test lots of ammunition which pertain to buffer mechanism performance.

2.12.2 Criteria

a. The average chamber pressure of M193 and M196 cartridges shall not exceed 52,000 psi and the average chamber pressure plus three standard deviations shall not exceed 58,000 psi (ref 5, par 3.10; ref 6, par 3.12).

b. The average port pressure of M193 and M196 cartridges shall be 15,000 $\pm$2000 psi (ref 5, par 3.11; ref 6, par 3.13).

2.12.3 Method

Port and chamber pressure measurements are obtained with 20 rounds of each test lot of ammunition with the ammunition temperature conditioned at +70°F. The tests are repeated with the ammunition temperature conditioned at -65°F and +155°F.

2.12.4 Data Required

The round-by-round data will be summarized in tabular form. The individual data will be placed in the appendix.

APPENDIX I - TEST DIRECTIVE

DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY TEST AND EVALUATION COMMAND
ABERDEEN PROVING GROUND, MARYLAND 21005

3 - 24 Jul 1967

AMSTE-BC

26 JUN 1967

SUBJECT: Test Directive for Product Improvement of Redesigned Buffer for M16A1 Rifle, USATECOM Project No. 8-7-0230-04

TO: Commanding Officer
Aberdeen Proving Ground
ATTN: STEAP-CO-P
Aberdeen Proving Ground, Maryland 21005

1. Reference letter, AMSTE-BC, dated 26 Apr 67, subject: Concurrent Tests of Quality Assurance (Inspection and Comparison) and Product Improvement Test of Redesigned Buffer for M16A1 Rifles, USATECOM Project No. 8-7-0230-03, with 1st Indorsement, AMSWE-QA, dated 17 May 67.

2. After review of the various M16A1 Rifle tests being conducted by this command, it is considered inadvisable to conduct concurrent tests of the buffer assembly with any of the present tests. Independent tests will permit a comprehensive evaluation of the buffer assembly without jeopardizing the objectives of other tests.

3. The objectives of this test are:

a. To compare cyclic rates of fire using the old and new buffers.

b. To compare the bolt rebound upon closing using the old and new buffers.

4. Commanding Officer, Aberdeen Proving Ground is directed to conduct an independent product improvement test of the redesigned buffer assembly for the M16A1 Rifle. Tests should include:

a. Ammunition characteristics.

b. Extreme high and low temperature.

c. Endurance.

d. Temperature and humidity.

e. Other, as deemed necessary.

AMSTE-BC 26 JUN 1967

SUBJECT: Test Directive for Product Improvement of Redesigned Buffer for M16A1 Rifle, USATECOM Project No. 8-7-0230-04

5. For the above tests, materiel requirements and funds will be provided direct to Project Manager, Rifles, with information copy to this headquarters. As previously discussed with Small Arms Branch, Development and Proof Services, test plans should be prepared to accommodate the following:

a. Twelve weapons (6 w/new buffers, 6 w/old buffers - Parkerized finish).

b. Extruded grain propellant for both tracer and ball ammunition.

c. Ball propellant for both tracer and ball ammunition.

6. During any given subtest, interchange buffers between rifles and take cyclic rates at various intervals during firing. Cyclic rates should be measured more frequently during the early phases of the tests than the late phases.

7. This is a Category I activity. USATECOM Project No. 8-7-0230-04 and SEA priority 1 is assigned.

8. A formal test plan is required with submission to this headquarters for approval by 24 July 1967. A formal test report is also required within 30 days after completion of tests.

9. Test plans and reports will be unclassified.

FOR THE COMMANDER:

JACK W. MORRIS
LTC GS
Act Dir, Inf Mat Test

2 Incl
1. STE Form 1027
2. Dist List

Copies furnished: (w/o incl)
CG USAMC ATTN: AMCPM-RS
CO APG ATTN: STEAP-DS-TI
Pres USAIB ATTN: STEBC-SA
USACDC Ln O, USATECOM
USMC Ln O, USATECOM

APPENDIX II - SUPPORT REQUIREMENTS

Item	Quantity
Rifle M16A1	12
Rifle XM16E1	1[a]
Cartridge, 5.56-mm, M193 (ball propellant)	29,000
Cartridge, 5.56-mm, M193 (IMR8208M propellant)	29,000
Cartridge, 5.56-mm, M196 (ball propellant)	29,000
Cartridge, 5.56-mm, M196 (IMR8208M propellant)	29,000
Standard buffers	15[a]
Spare parts	[b]

[a]From test materiel on hand at APG.
[b]All support requirements are available or have been received with the exception of spare parts which will be requisitioned by APG.

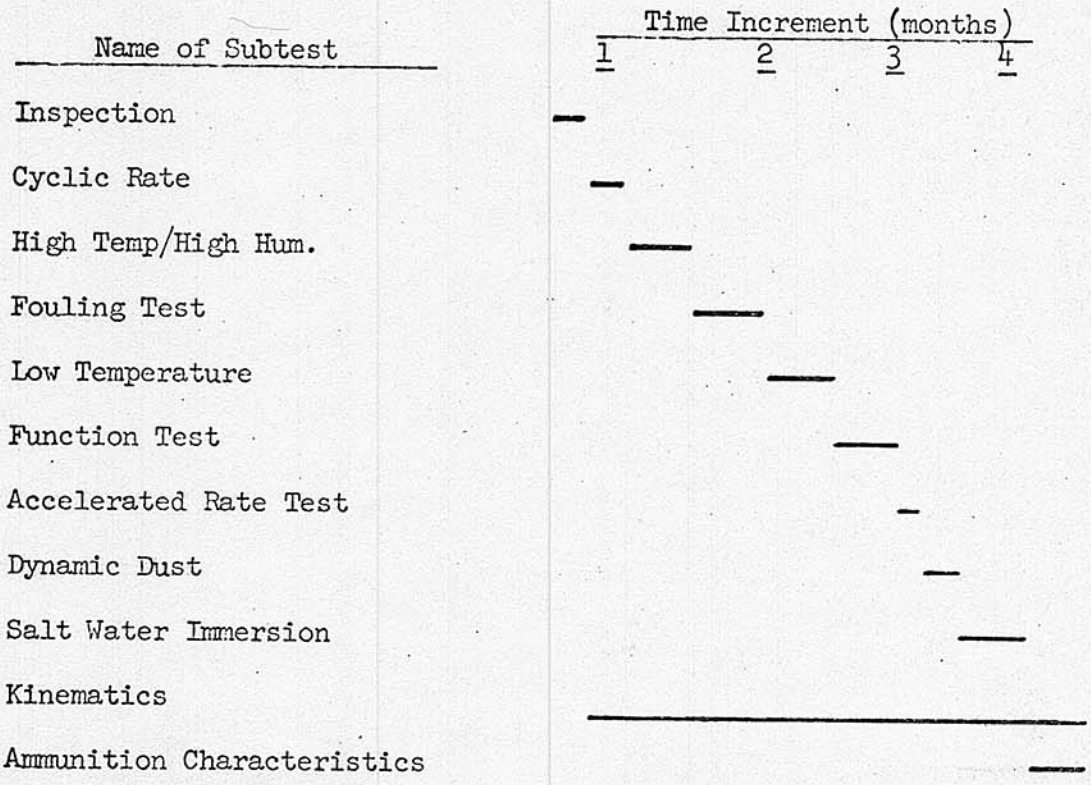
APPENDIX III - TEST SCHEDULE

1. Schedule of Events

Preliminary Planning	July 1967
Test Plan Submission Date	July 1967
Support Equipment Delivery	July 1967
Test Completion	Nov 1967
Final Report	Dec 1967

S Start
J
F
1 Feb
DEC

2. Detailed Test Schedule



APPENDIX IV - REFERENCES

1. TM 9-1005-249-14, Rifle, 5.56-mm, M16, August 1966.

2. DPS 2417, Final Report on Military Potential Test of Lubricants.

3. SAPD-253B, Acceptance Testing Specification for Rifle M16 and XM16E1.

4. USABRL 610, Displacement Time Recorder.

5. MIL-C-99630, Military Specification for Cartridge, 5.56-mm, M193.

6. MIL-C-60111, Military Specification for Cartridge, 5.56-mm, M196.

7. Letter, AMSWE-SMM-SA, 2 June 67, Subject: Lubrication and Preservatives for M16A1 Rifle.

APPENDIX V - DISTRIBUTION LIST

USATECOM PROJECT NOS. 8-7-0230-04

Distribution denoted by an asterisk (*) will be made from those copies furnished to Headquarters, USATECOM.

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Commanding General USA Test and Evaluation Command ATTN: AMSTE-BC Aberdeen Proving Ground, Maryland 21005	30	(1)	3	30
Commanding General USA Materiel Command ATTN: AMCRD-WI AMCAD-S AMCPP AMCQA AMCMA-R AMCSU AMCMI Washington, D. C. 20315	2* 1* 1* 1*	(2) (1)	2	2* 1* 1* 1* 1* 1* 1*
Commanding General USA Combat Developments Command ATTN: CDC Liaison Officer, USATECOM Aberdeen Proving Ground, Maryland 21005	10*	(5)	5	10*
US Marine Corps Liaison Officer, USATECOM Aberdeen Proving Ground, Maryland 21005	1*			1*
Commanding General USA Materiel Command ATTN: AMCPM-RS Rock Island, Illinois 61200	3*	(3)	3	3*
Commanding General USA Weapons Command ATTN: AMSWE-RDS Rock Island, Illinois 61200	5*	(5)	5	5*
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Commanding Officer USA Springfield Armory ATTN: SWESP-RET Springfield, Massachusetts 01101	3	(3)	3	3
Commanding Officer USA Frankford Arsenal ATTN: SMUFA-C2500 Philadelphia, Pennsylvania 19137				1
Commanding Officer USA Arctic Test Center APO Seattle 98733				1
President USA Infantry Board Fort Benning, Georgia 31905				1
Commanding Officer Aberdeen Proving Ground ATTN: STEAP-DS STEAP-DS-TA Aberdeen Proving Ground, Maryland 21005	1	(1)	1	1 1
Commanding Officer USA Ballistics Research Laboratories ATTN: AMXBR-ID AMXBR-WD Aberdeen Proving Ground, Maryland 21005				1 1
Commanding Officer USA Human Engineering Laboratories ATTN: AMXHE-SYS Aberdeen Proving Ground, Maryland 21005				1
Commandant USA Ordnance Center & School Aberdeen Proving Ground, Maryland 21005				1
Commandant USA Infantry School ATTN: AJIIS-M Fort Benning, Georgia 31905				1
Commanding General USA Ammunition Procurement & Supply Agency ATTN: SMUAP-A Joliet, Illinois 60431				3

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President USA Maintenance Board Fort Knox, Kentucky 40121				1
Commandant US Marine Corps Washington, D. C. 20380				1
Director Marine Corps Landing Force Development Center Quantico, Virginia 22134	1		1	1
AFSC STLO Building 390 Aberdeen Proving Ground, Maryland 21005				1 (ET onl
Commander Defense Documentation Center for Scientific and Technical Information ATTN: Document Service Center Cameron Station, Alexandria, Virginia 22313				20

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