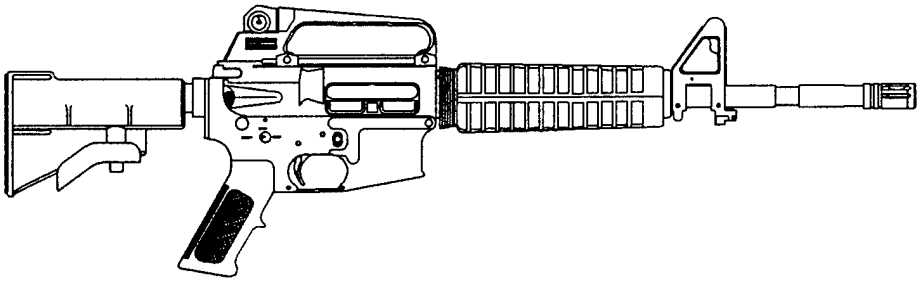
Fire to Destruction Test of 5.56mm M4A1 Carbine and M16A2 Rifle Barrels

Final Report



Prepared by:

Jeff Windham
Small Arms Branch
Engineering Support Directorate
Rock Island Arsenal, Illinois

September 1996

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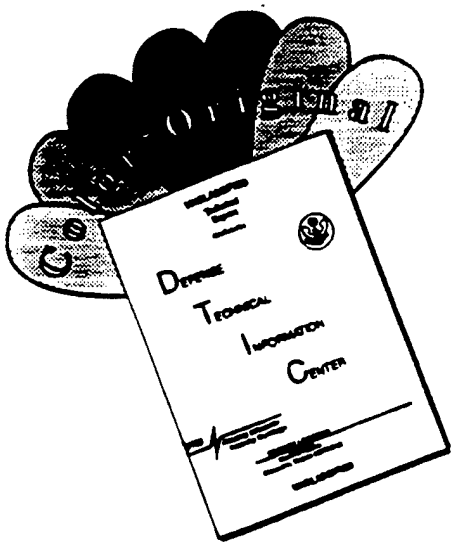

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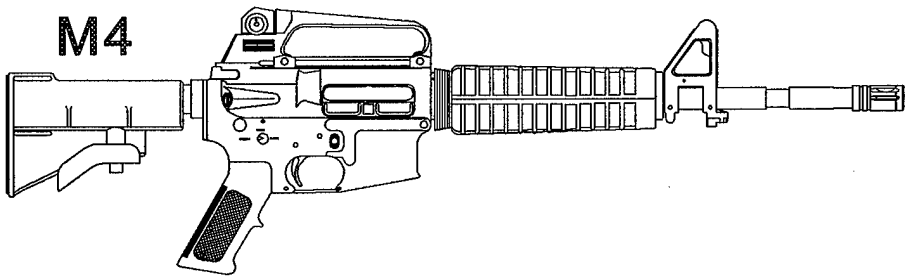
AMSTA-AR-ES-92-2

Fire to Destruction Test of 5.56mm M4A1 Carbine and M16A2 Rifle Barrels

Final Report



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September 1996

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

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Handguard	M16A2 Rifle	
Barrel	Ruptured	

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This test report examines the effects of firing 5.56mm M4A1 Carbine and M16A2 Rifles at a high rate of fire until the weapon is severely overheated and destroyed due to ruptures in the barrel.
This test indicated the M4A1 Carbine performs as well as or better than the M16A2 Rifle with respect to barrel ruptures from overheating.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

TECHNICAL REPORT NO. AMSTA-AR-ES-96-2

FIRE TO DESTRUCTION TEST OF 5.56mm M4A1 CARBINE AND M16A2 RIFLE BARRELS

Final Report

SEPTEMBER 1996

PREPARED
BY

JEFF WINDHAM
General Engineer

APPROVED
BY

DONALD K. KOTECKI
Director, Engineering Support Directorate

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

ENGINEERING SUPPORT DIRECTORATE
ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
ROCK ISLAND, IL 61299-7300

ABSTRACT:

This test report examines the effects of firing 5.56mm M4A1 Carbine and M16A2 Rifles at a high rate of fire until the weapon is severely overheated and destroyed due to ruptures in the barrel.

This test indicated the M4A1 Carbine performs as well as or better than the M16A2 Rifle with respect to barrel ruptures from overheating.

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FIRE TO DESTRUCTION TEST OF 5.56mm M4A1 CARBINE AND M16A2 RIFLE BARRELS

16 SEPTEMBER 1996

1.0 **BACKGROUND:** Reports have been received of 5.56mm M4A1 Carbine barrels rupturing. These incidents have occurred in Special Forces units which have recently been fielded M4A1 Carbines to replace their M16A2 Rifles (see Appendix A). In the past, ruptured barrels have occurred in the M16 Series Rifles when the barrel was grossly overheated due to excessive firing rates. Concern was expressed that the M4A1 Carbine may be more susceptible to the ruptured barrel problem at lower rates of fire. Testing was conducted at Rock Island Arsenal to examine this issue.

2.0 **TEST PROCEDURE:** A test fixture was constructed which would hold the weapons during firing while protecting the shooter when the barrel ruptured. Provisions were made in this test fixture for both remote firing of the weapon and remote operation of the charging handle. Video cameras were set to show the barrel and ejection port. The barrel was thermocoupled along its length (see Appendix B). Photographs of the test fixture are shown in figures 1, 2, and 3. The M16A2s were modified to fire full automatic by using M16A1 Rifle firing mechanism. The weapons were assembled into the test fixture and fired full automatic in 30 round bursts (magazine changes approximately every 10 seconds).

3.0 **TEST RESULTS:**

3.1 **M16A2 Rifle:** The M16A2 was fired continuously using 30 rounds bursts. Shown in table I are the rounds to failure, time to failure and maximum barrel temperature of the barrel. Muzzle flash increased and there was a distinct change in the sound of the weapons firing approximately 30 rounds before the barrel ruptured. There was also noticeable drooping (about 1 inch at the muzzle) of the barrel just prior to the barrel rupture. The barrel ruptured at 491 rounds with an approximately $^{1}/_{4}$ inch hole in the top of the barrel about 8 inches in front of the chamber. The barrel was bent approximately 5 degrees and bulged in several locations along its length (see figures 4, 5, and 6). A plot of barrel temperature vresus time at each thermocouple location is shown in figure 7.

3.2 **M4A1 Carbine, Weapon 1:** The M4A1 Carbine was fired for

540 rounds. It was thought the M4A1 barrel would rupture well before this point, therefore only 540 rounds were loaded for firing. This weapons barrel was noticeably bent and bulged at the end of the test (see figure 8). A plot of barrel temperature versus time at each thermocouple location is shown in figure 9.

3.3 M4A1 Carbine, Weapon 2: A second M4A1 Carbine was fixtured for testing and fired until barrel rupture. Muzzle flash increased and there was a distinct change in the sound of the weapons firing approximately 30 rounds before the barrel ruptured. There was also noticeable drooping (about $^{3}/_{4}$ inch at the muzzle) of the barrel just prior to the barrel rupture. The barrel was ruptured at the 12 o'clock position approximately 4 inches in front of the chamber. The rupture was approximately $1^{1}/_{4}$ inches long and $^{5}/_{8}$ inches wide. The barrel around the rupture was bulged out about 30 percent larger than its normal diameter. The barrel was bent at the hole approximately 3 degrees (see figures 10 and 11). A plot of barrel temperature versus time at each thermocouple location is shown in figure 12. There was an approximately 30-second delay in firing of this sequence which can be seen in the temperature plots. This delay allowed additional cooling of the weapon and may have increased the number of rounds to rupture by 30 to 60 rounds.

FIRE TO DESTRUCTION TEST RESULTS

	M16A2 Rifle	M4 Carbine (Weapon 1)	M4 Carbine: (Weapon 2)
Number of Rounds to Destruction:	491	540*	596
Time to Destruction: (min:sec)	2:49	3:00*	3:32
Max Barrel Temperature at Destruction:	1599°F	1712°F*	1639°F

* Gunner ran out of ammunition before weapon's barrel was destroyed.

TABLE I

4.0 Metallurgical Evaluation: The metallurgist report of the ruptured M4A1 Carbine barrel is in Appendix C. The hardness plot of this report shows a change in hardness of the barrel three to

five inches forward of the chamber. This analysis is consistent with the temperature plots in figure 13 which show this area of the barrel reaches the highest temperature during firing. The evaluation shows the chemical content and metallurgical structure of the barrel were acceptable before the rupture.

5.0 ANALYSIS:

5.1 Reviewing the results of Table I, the M16A2 Rifle failed at 491 rounds versus between 540 to 596 for the M4A1 Carbine. This indicates the M4A1 performs better with respect to barrel rupture that the M16A2 (firing full automatic).

5.2 From the rupture, it may appear the bullet exits the side of the barrel, however this test showed no indication of the bullet exiting the side of the barrel on the plywood screens around the barrel. Most likely the bullet exited the end of the barrel and the rupture in the side of the barrel was solely due to the high pressure gases within the barrel.

5.3 The barrels were noticeably bent and bulged upon rupture. This likely occurs just prior to the failure and accounts for the flash increase and sound change just prior to failure as gas blows by the bullet.

6.0 CONCLUSIONS:

6.1 The M4A1 Carbine performs well with respect to the number of rounds and firing schedules required to produce a barrel rupture. The M4A1 Carbine is as good as or better than the M16A2 Rifle (firing full automatic) with respect to number of rounds required to rupture the barrel. It is possible that the 3-round burst mechanism standard in the M16A2 would reduce the probability of a ruptured barrel.

6.2 The ruptured barrels received from the field were visually and metallurgically identical to the ruptured M4A1 Carbine barrel fired during this test. Therefore, it is concluded that the failure mode of the field weapons and the M4A1 Carbine destroyed in this test is the same, i.e., overheating of the barrel due to severe firing schedules.

7.0 OTHER RELATED REPORTS:

a. External Barrel Temperature of the M16A1 Rifle, R-TR-75-045, July 1975, Rodman Laboratory, Rock Island Arsenal, IL.

b. XM4 Carbine Development Program, AD-E401 627, Sept 1987, Colt Firearms, Hartford, CT.

c. External Barrel and Handguard Temperature of the 5.56mm M4 Carbine, SMCAR-ES-94-1, Sept. 1994, Rock Island, IL.

d. ARDEC Evaluation of Blown 5.56mm M4A1 Carbine Barrel,

28 March 1995.

e. ARDEC Evaluation of Blown 5.56mm M4A1 Carbine Barrel, 31 August 1996.

Jeff Windham
General Engineer
AMSTA-AR-ESW-S

C:\wpdocs\m4\bln_brl.tst

Figure 1

A0318-SCN-96-08.0174-2069-173
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 10 of 12
Photographer: Tony Lopez

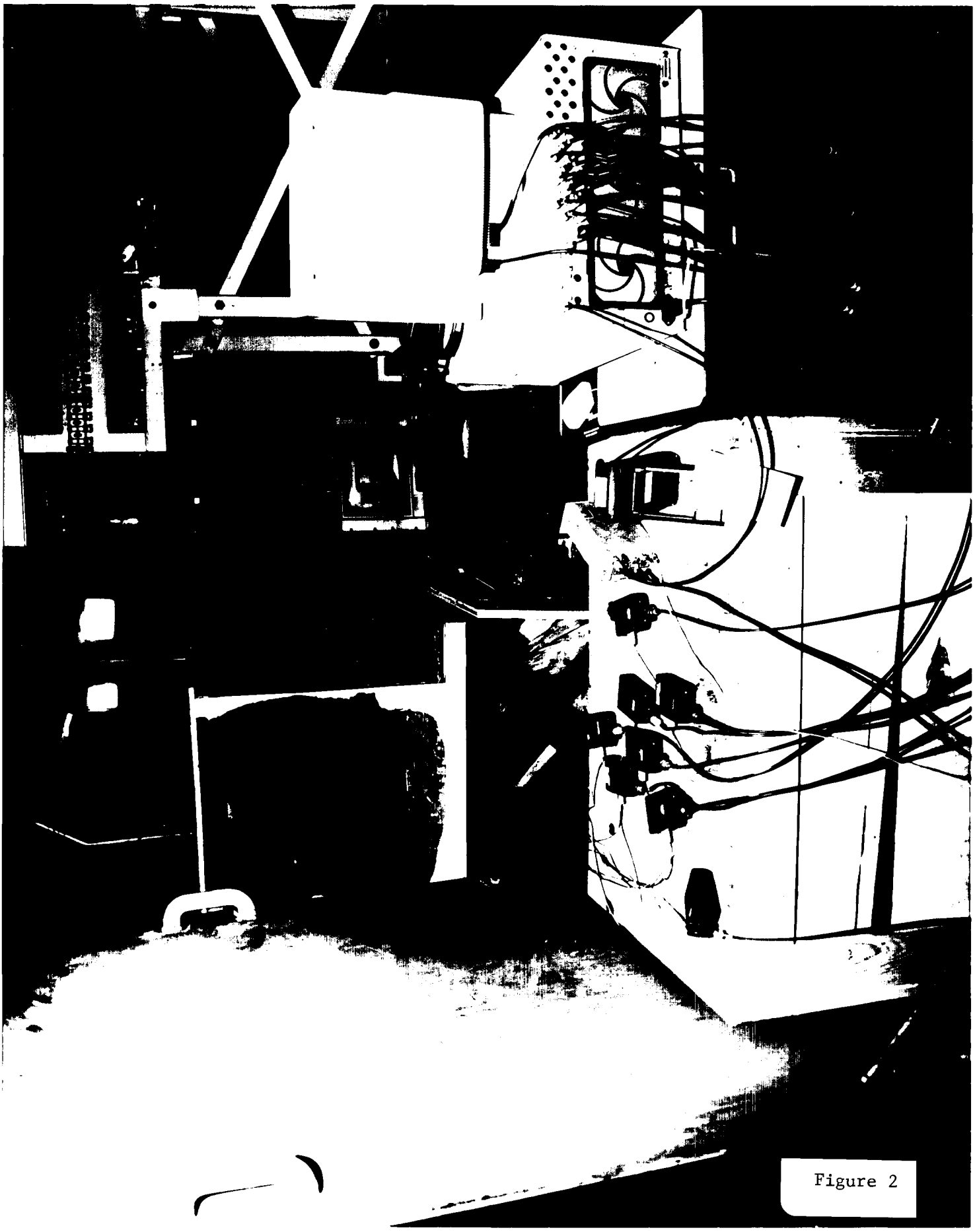


Figure 2

A0318-SCN-96-08.0174-2069-175
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 12 of 12
Photographer: Tony Lopez

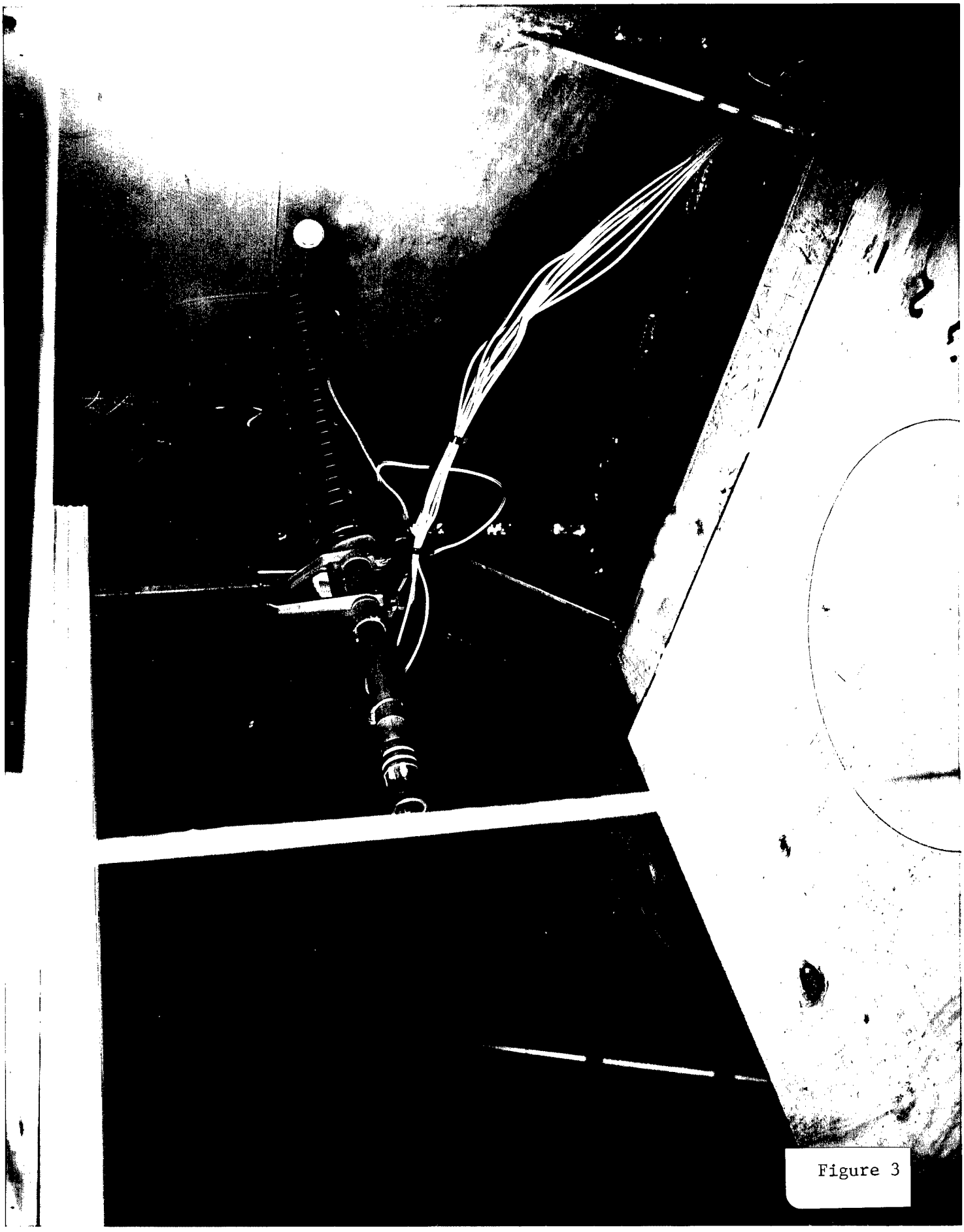


Figure 3

A0318-SCN-96-08.0174-2069-171
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 8 of 12
Photographer: Tony Lopez

Figure 4

A0318-SCN-96-08.0174-2069-172
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 9 of 12
Photographer: Tony Lopez

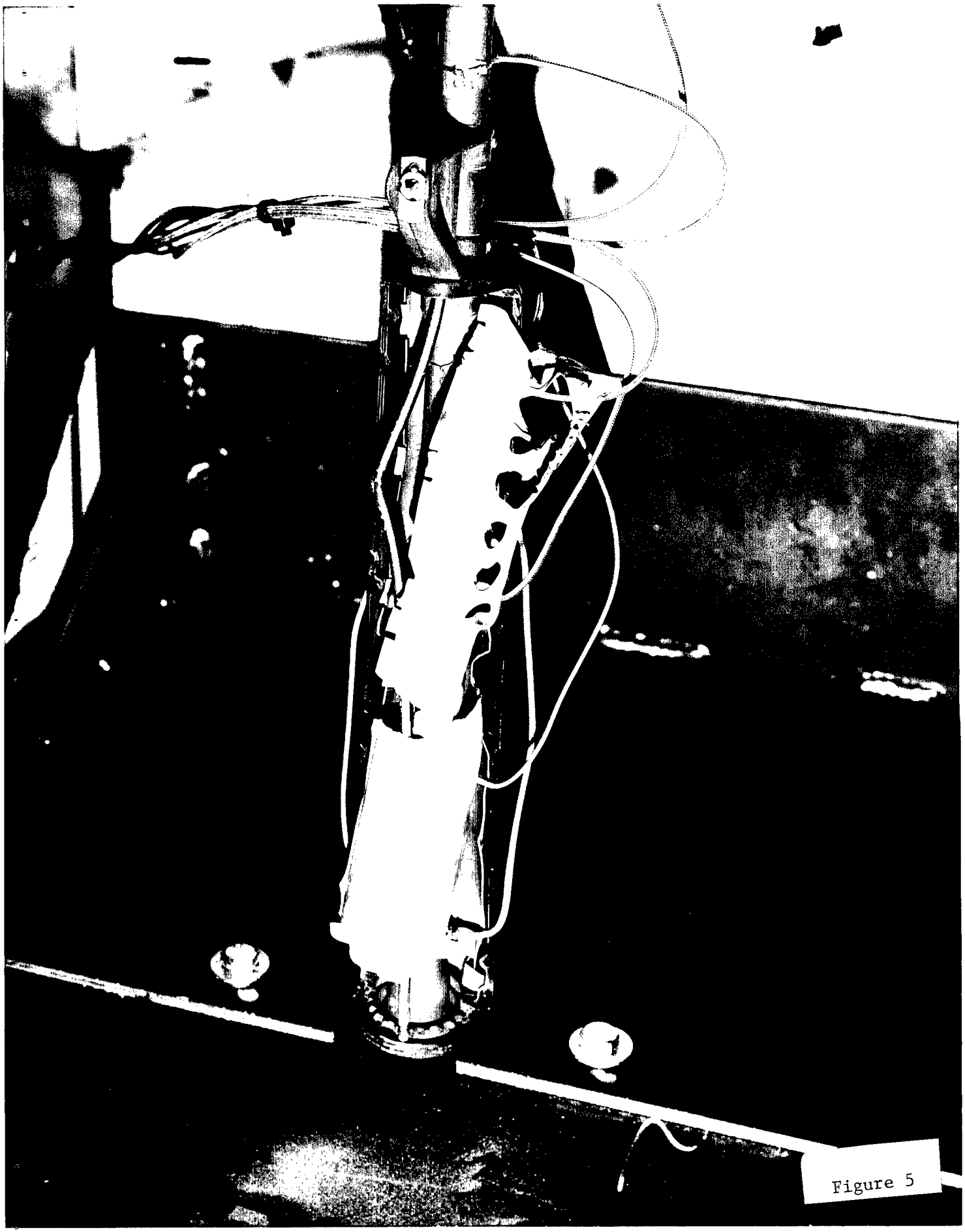


Figure 5

A0318-SCN-96-08.0174-2069-170
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 7 of 12
Photographer: Tony Lopez

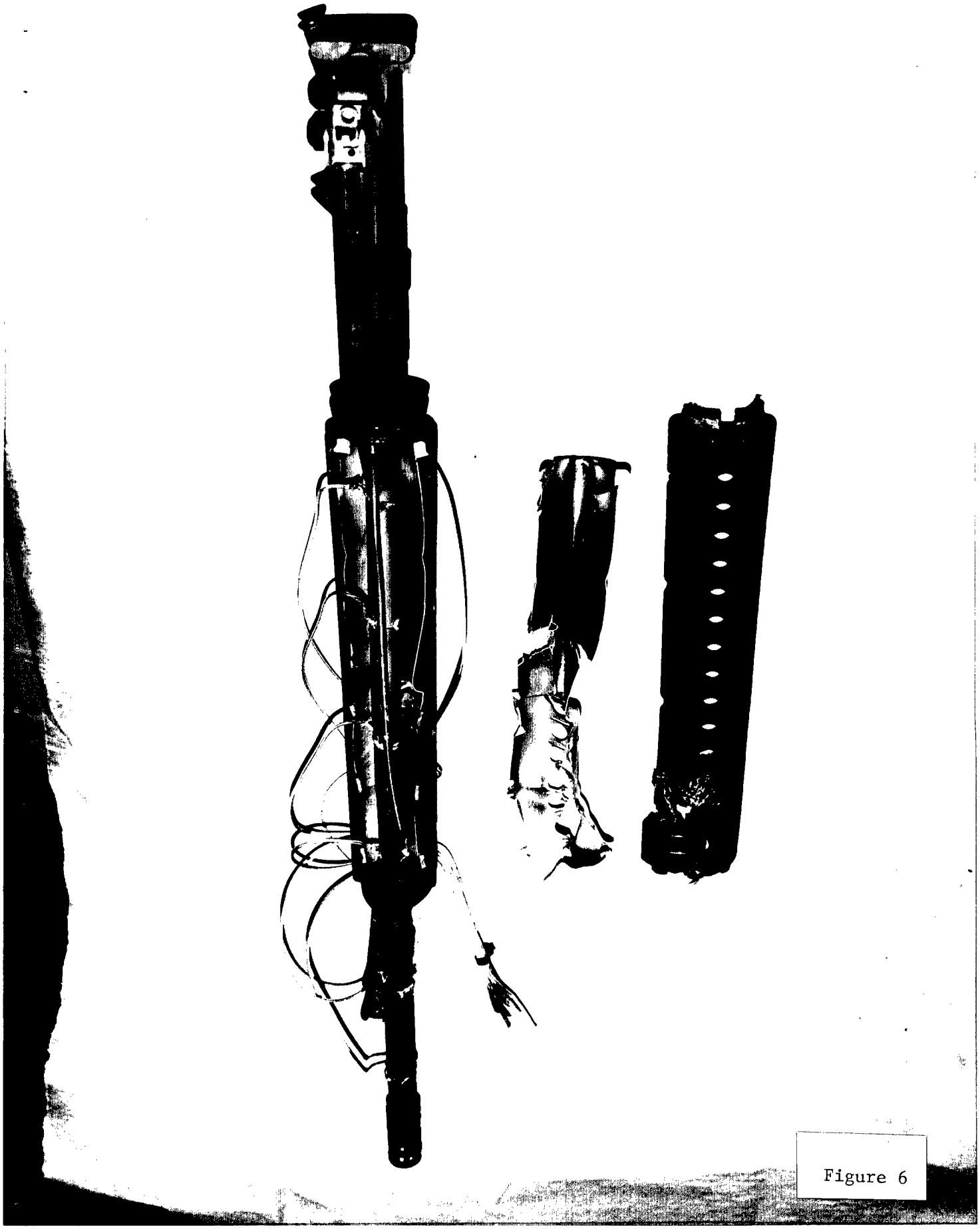


Figure 6

A0318-SCN-96-08.0174-2069-165
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 2 of 12
Photographer: Tony Lopez

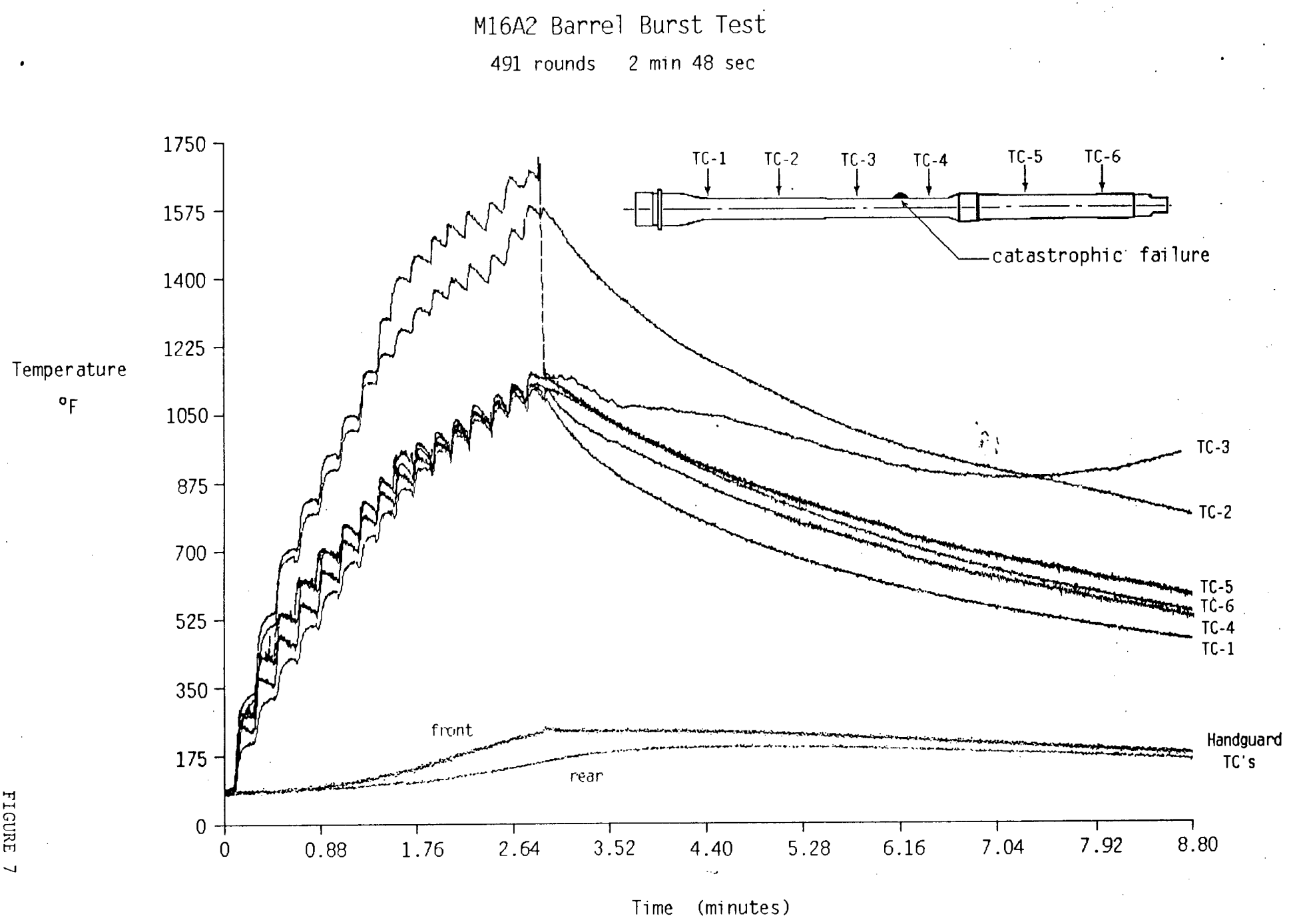

M16A2 Barrel Burst Test
491 rounds 2 min 48 sec
TC-1
TC-2
TC-3
TC-4
TC-5
TC-6
catastrophic failure
Temperature
°F
1750
1575
1400
1225
1050
875
700
525
350
175
0
TC-3
TC-2
TC-5
TC-6
TC-4
TC-1
front
rear
Handguard
TC's
0
0.88
1.76
2.64
3.52
4.40
5.28
6.16
7.04
7.92
8.80
Time (minutes)

FIGURE 7

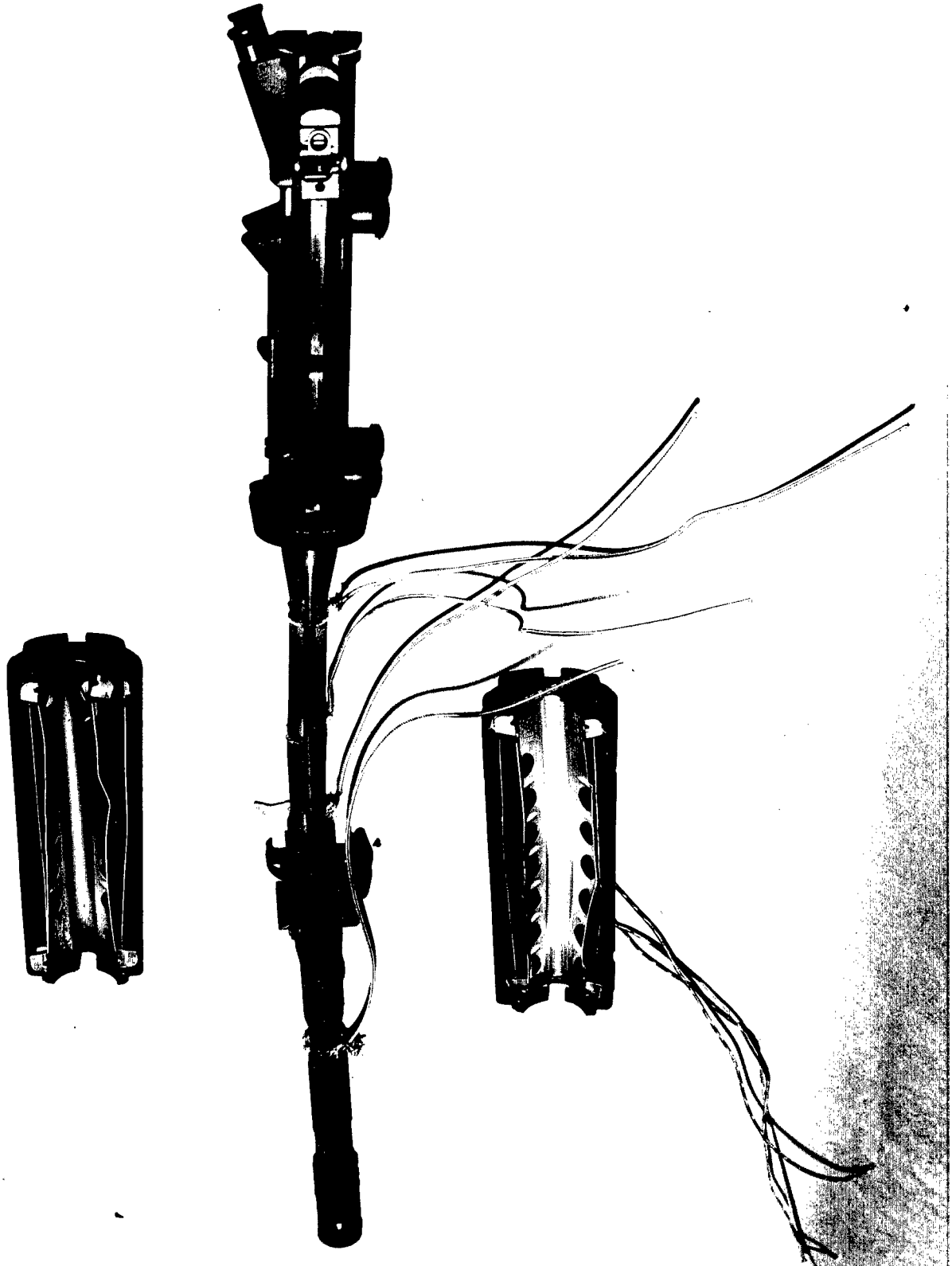


Figure 8

A0318-SCN-96-08.0174-2069-164
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 1 of 12
Photographer: Tony Lopez

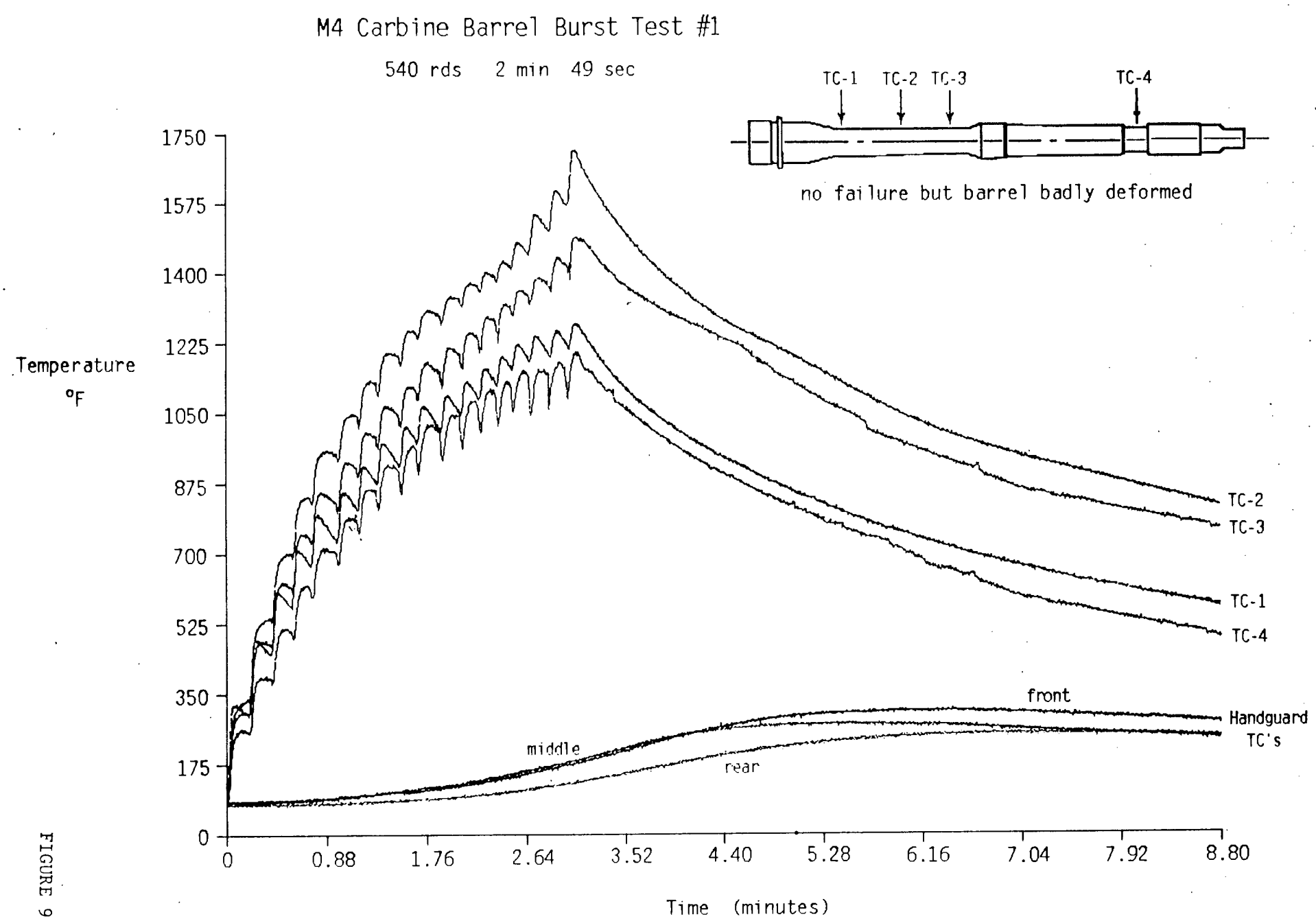

M4 Carbine Barrel Burst Test #1
540 rds 2 min 49 sec
TC-1
TC-2
TC-3
TC-4
no failure but barrel badly deformed
Temperature °F
1750
1575
1400
1225
1050
875
700
525
350
175
0
0
0.88
1.76
2.64
3.52
4.40
5.28
6.16
7.04
7.92
8.80
Time (minutes)
TC-2
TC-3
TC-1
TC-4
front
Handguard TC's
middle
rear

FIGURE 9

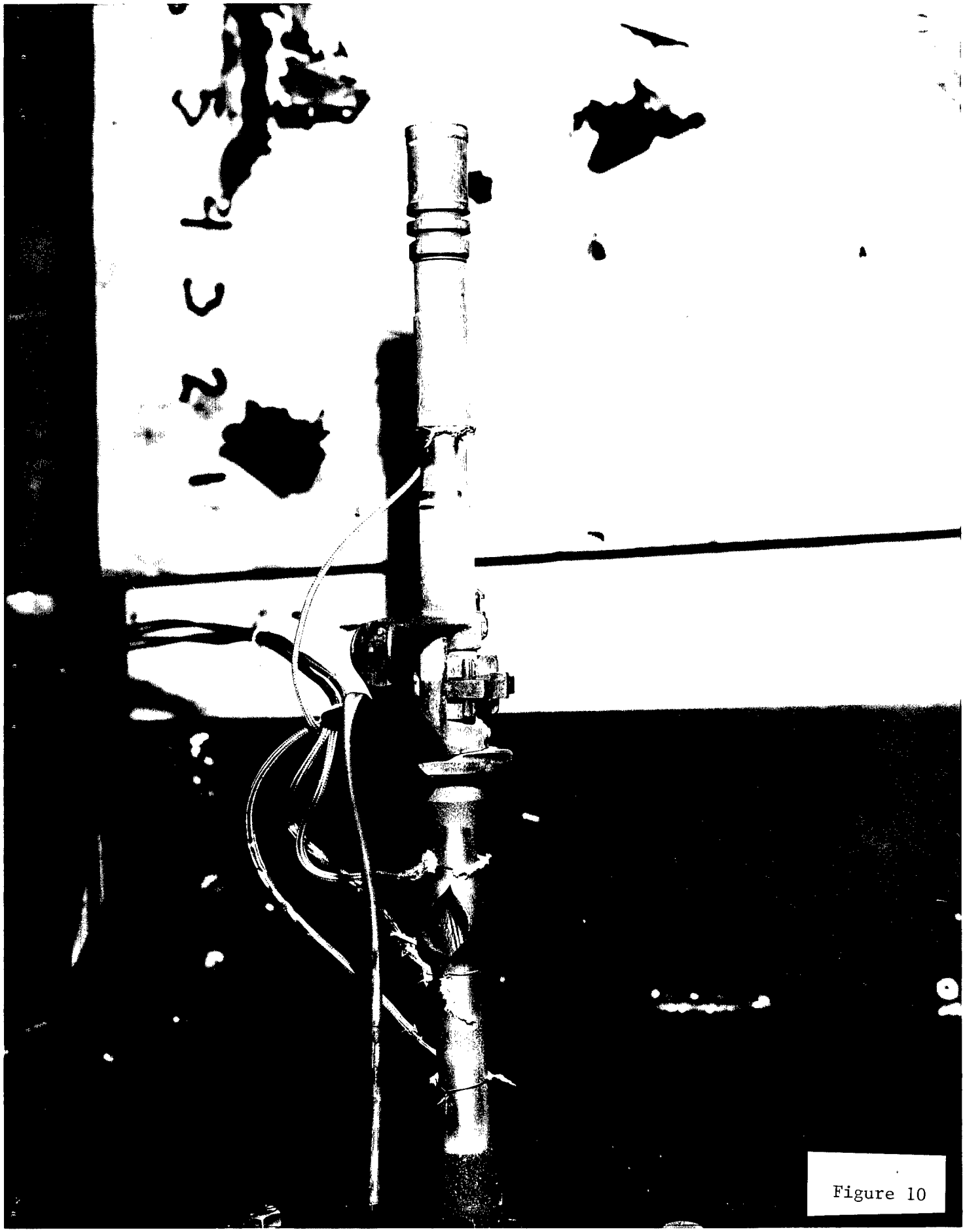


Figure 10

A0318-SCN-96-08.0174-2069-167
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 4 of 12
Photographer: Tony Lopez

Figure 11

A0318-SCN-96-08.0w74-2069-166
R&D Testing
M16A2 and M4 Carbine Barrel
Failure Test
Shot on 21 August 1996
Negative 3 of 12
Photographer: Tony Lopez

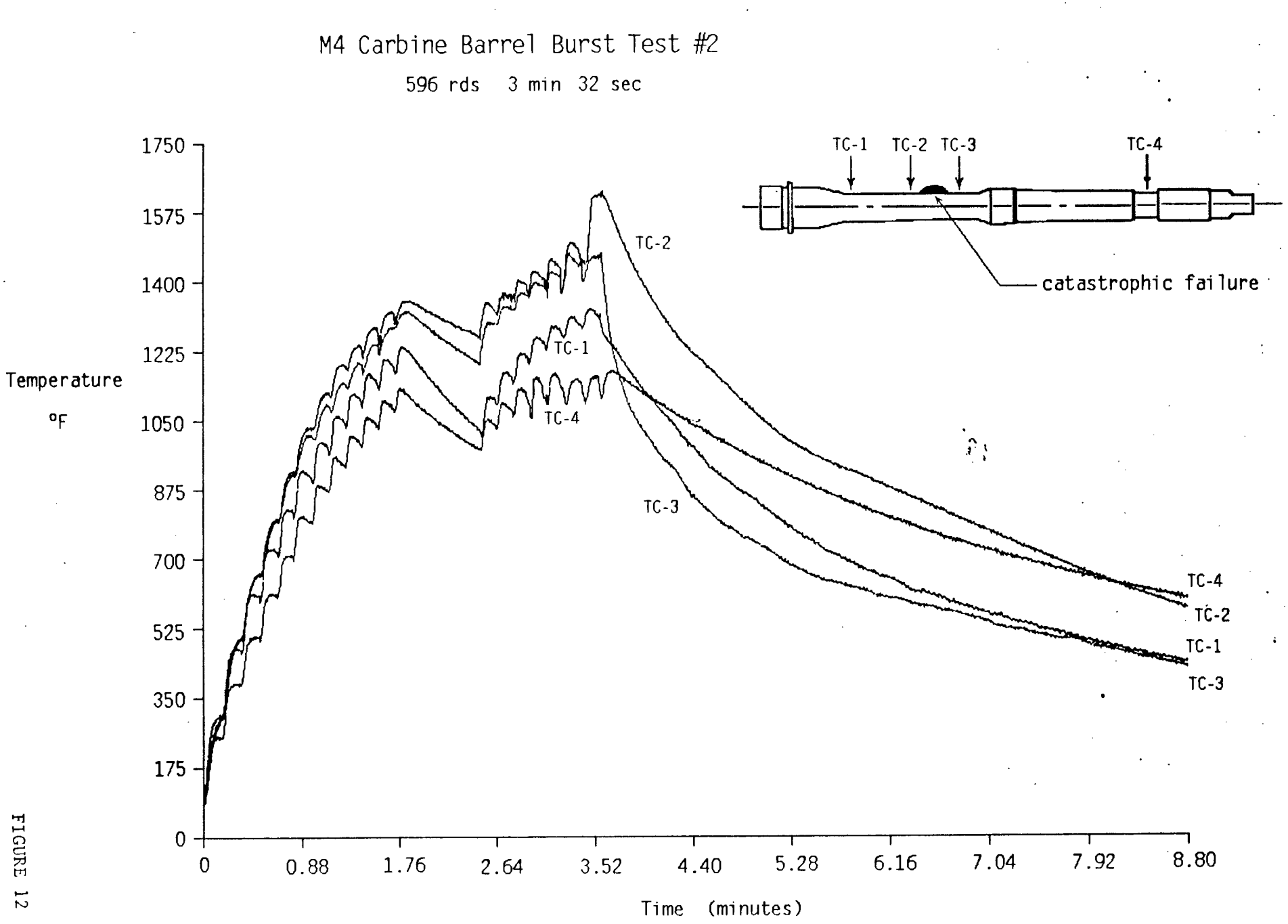

M4 Carbine Barrel Burst Test #2
596 rds 3 min 32 sec
TC-1
TC-2
TC-3
TC-4
catastrophic failure
Temperature
°F
1750
1575
1400
1225
1050
875
700
525
350
175
0
0
0.88
1.76
2.64
3.52
4.40
5.28
6.16
7.04
7.92
8.80
Time (minutes)

FIGURE 12

	M4 and M16A2 Barrel Burst Test						
		peak temperatures (F)					
Distance	M16 barrel	M16 guard	M4 barrel #1	M4 guard	M4 barrel #2		
1.5				259			
2	1131		1279		1337		
2.5		230					
4			1713	283	1640		
5	1599						
5.5			1495		1483		
6.75				315			
8	1690						
11	1194	337	1163		1181		
15	1161						
18	1159						
20							

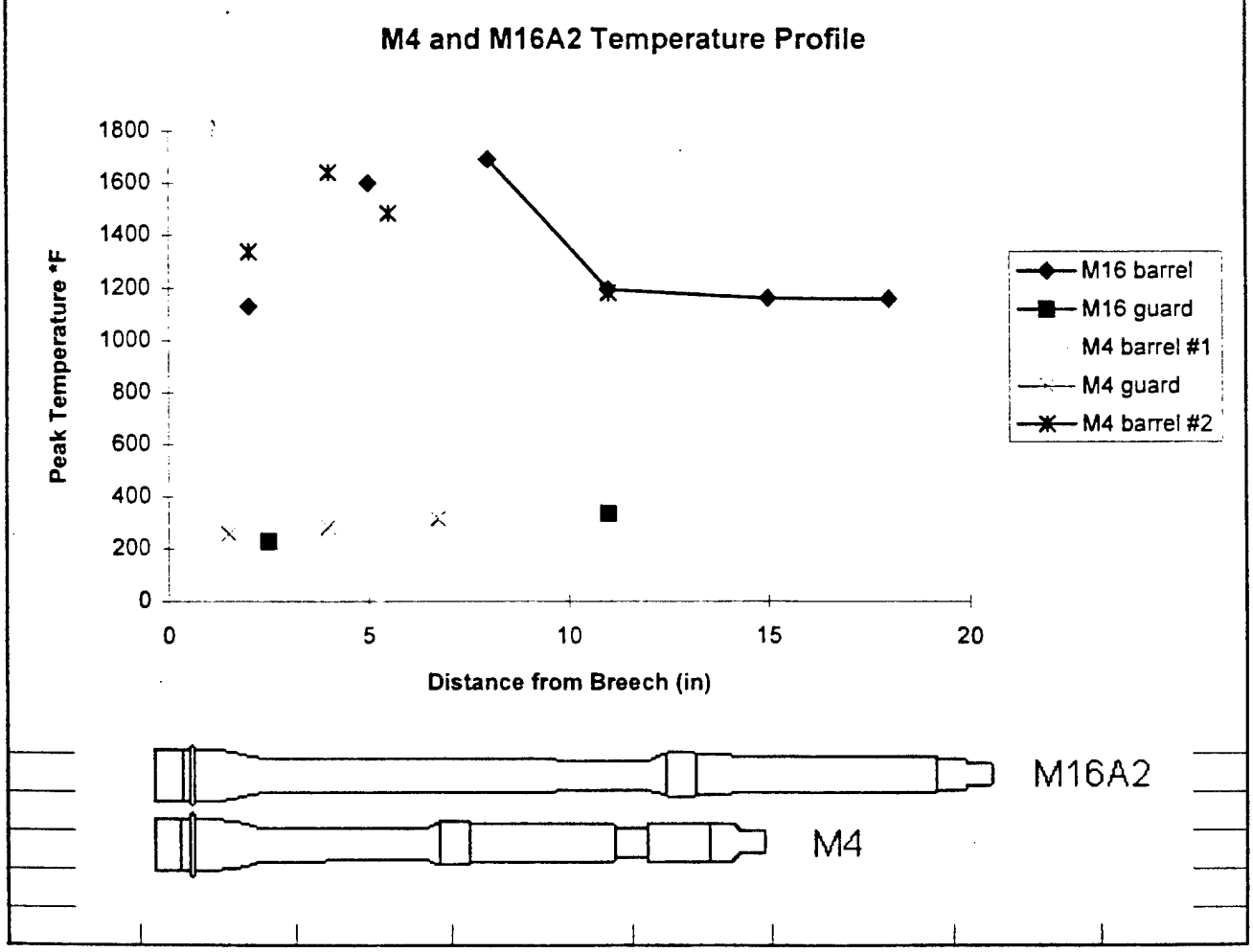


FIGURE 13

APPENDIX A

PAGE OF

ROCK ISLAND ARSENAL

REQUEST FOR TEST AND LABORATORY RESULTS

LAB. NUMBER	DATE RECEIVED:	PURCHASE ORDER NUMBER:	ITEM NUMBER:	DATE:
96-1881	28 AUG 96			28 Aug 96
QA NUMBER:	EX. ORDER NUMBER:	REQN NUMBER:	CHARGE TO:	
			1A6A6DJE1AMJ	

CHECK APPLICABLE BLOCK:

☐ PARTICULATE CONTAMINATION ☐ CHEMICAL ANALYSIS ☒ FAILURE ANALYSIS ☐ OTHER

MATERIAL: M4 barrel

SIZE:	QTY:	SPEC NUMBER:	REC'D FROM:	INSP/PHONE:
				Jeff Windham/28162

RESULTS: The test results are contained in Table I and Figures 1-3.

DISCUSSION: The hardness survey and microstructural analysis of the barrel indicates this barrel failed similar to previously examined barrels, lab reports 95-0879 and 96-1701. Since this barrel is known to have failed at 1700 deg. Fahrenheit it follows that the previously examined barrels would have also reached the same temperature, not the previously reported 1500 deg. F.

Steve Countryman

Steve Countryman
Metallurgist
SIORI-SEM

TABLE I
CHEMICAL ANALYSIS

ELEMENT	REQUIREMENTS MIL-B-11595 CR-MO-V	RESULTS (%) #1
CARBON	0.41 - 0.49	0.50 *
MANGANESE	0.60 - 0.90	0.82
PHOSPHORUS	0.040 MAX	0.018
SULFUR	0.040 MAX	0.027
SILICON	0.20 - 0.35	0.23
CHROMIUM	0.80 - 1.15	1.06
MOLYBDENUM	0.30 - 0	0.37
VANADIUM	0.20 - 0	0.26

* carbon is within test error.

Copy to D. Assid.

LABORATORY RECOMMENDATION: ☐ Accept ☐ Reject ☒ For Information Only

Dexter N. Markel Jr. DR. RICHARD W. PERRY

(SIGNATURE)

SMCPR Form 57.1 1 FEB 88 REPLACES EDITION OF 1 NOV 83, WHICH WILL BE USED.

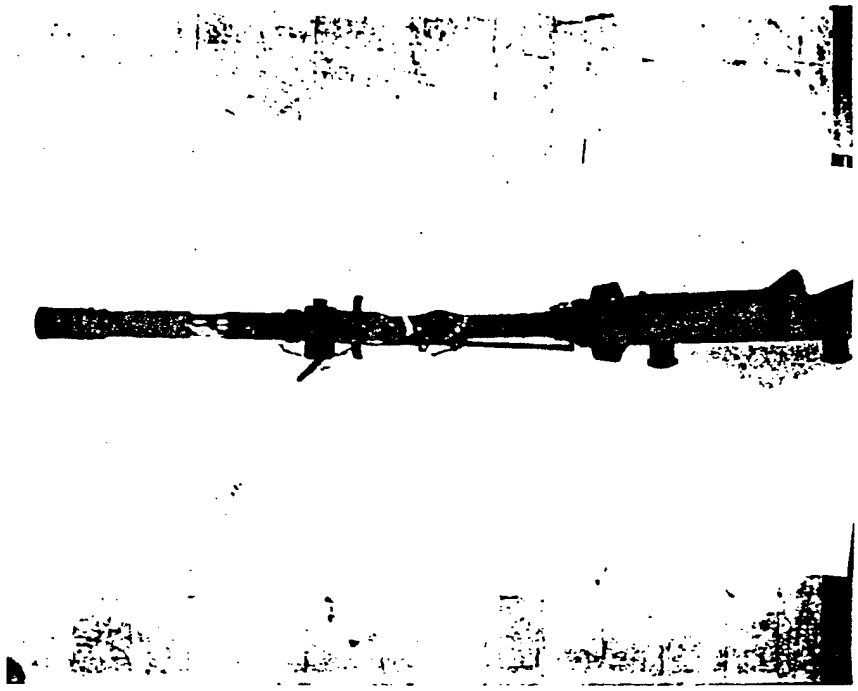


FIGURE 1

Burst Barrel

Barrel befor sectioning for examination

SPECIMEN NO.: M4 MAGNIFICATION: 0,25X ~~ETCH:~~

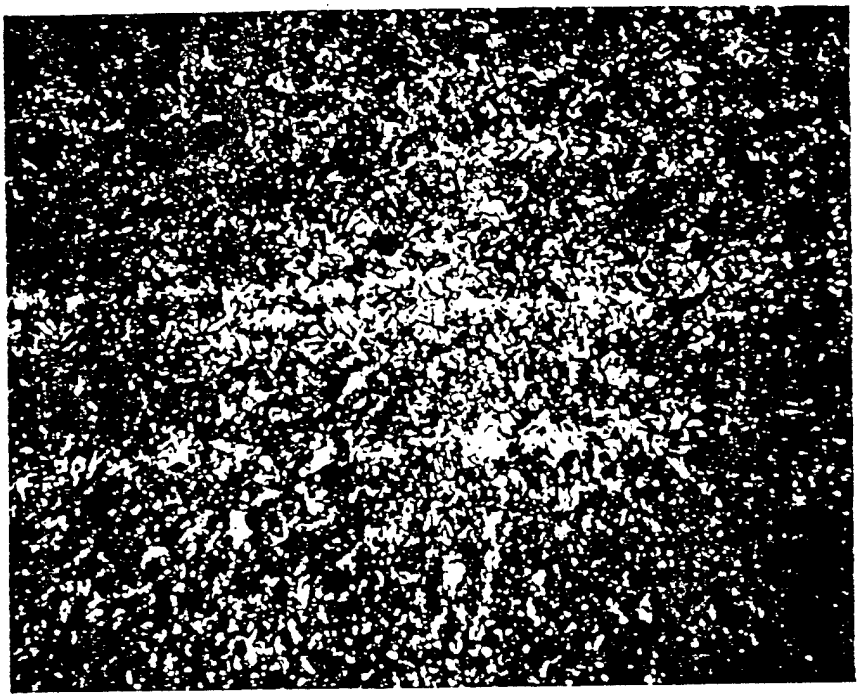


FIGURE 2

Microstructure of Steel at Burst

A mixed microstructure is present Slow cooling from 1700°F could result in this microstructure

SPECIMEN NO.: M4 MAGNIFICATION: 500X ETCH: Nital

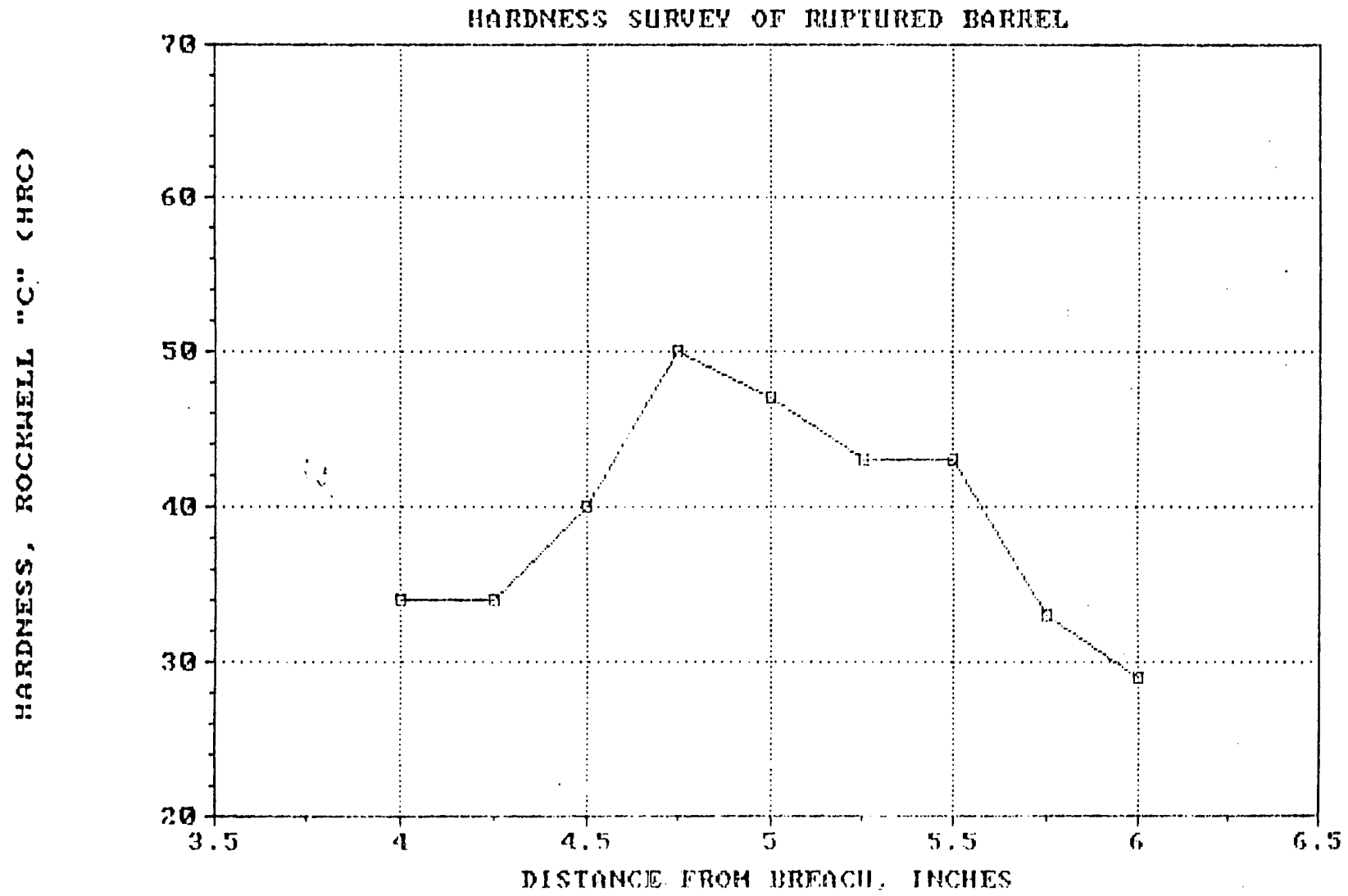
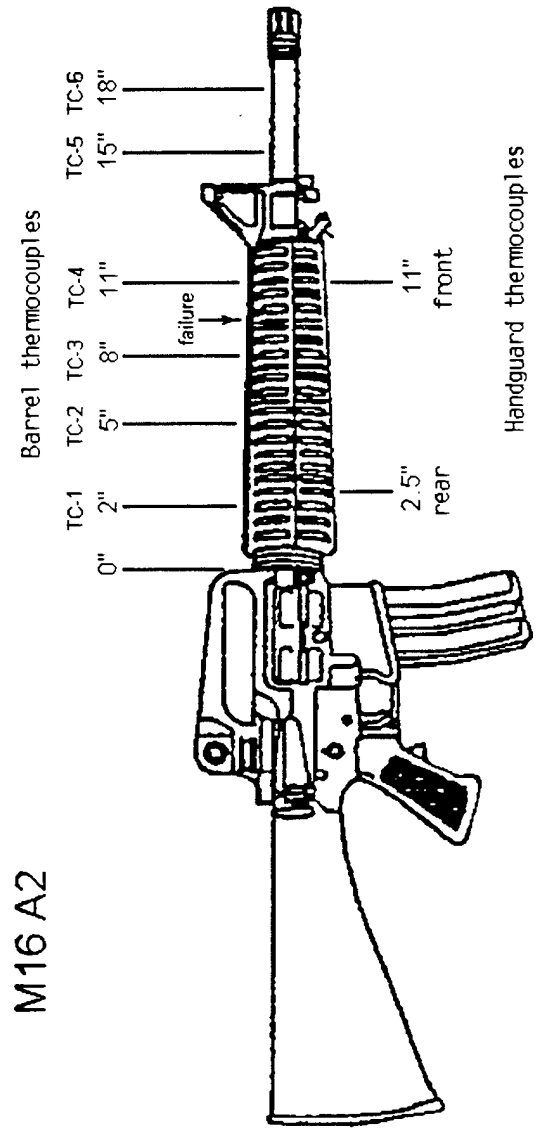
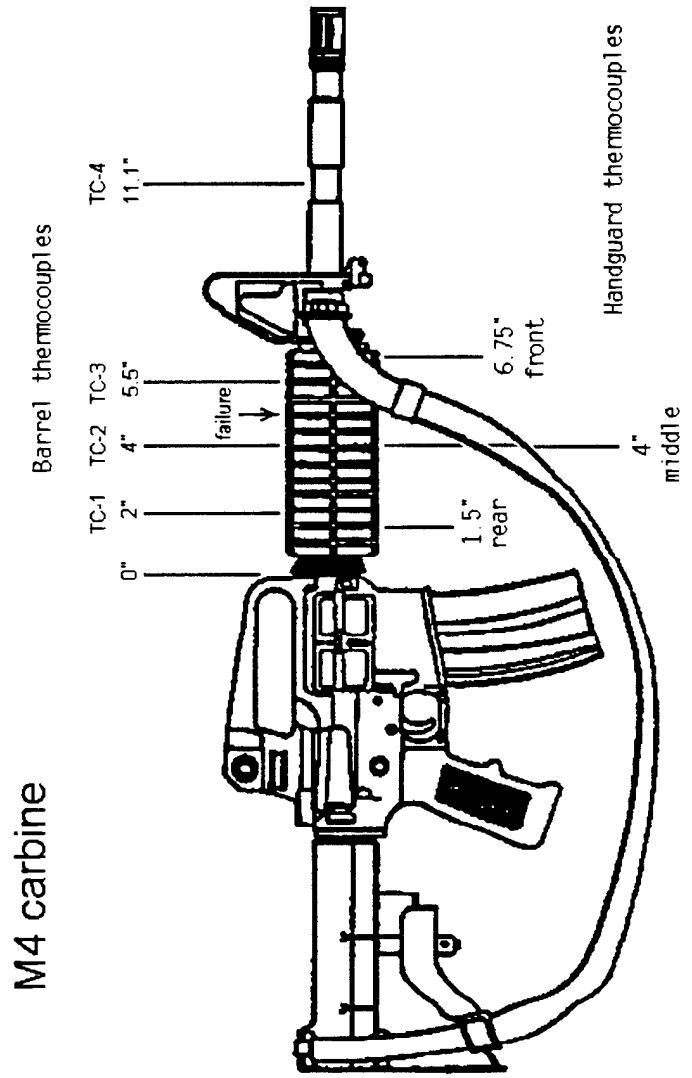

HARDNESS SURVEY OF RUPTURED BARREL
HARDNESS, ROCKWELL "C" (HRC)
70
60
50
40
30
20
3.5
4
4.5
5
5.5
6
6.5
DISTANCE FROM BREACH, INCHES

Figure 3


M16 A2
Barrel thermocouples
TC-1 TC-2 TC-3 TC-4 TC-5 TC-6
0" 2" 5" 8" 11" 15" 18"
failure
2.5" rear
11" front
Handguard thermocouples


M4 carbine
Barrel thermocouples
TC-1 TC-2 TC-3 TC-4
0" 2" 4" 5.5" 11.1"
failure
1.5" rear
6.75" front
4" middle
Handguard thermocouples

M-4A1 CARBINE ACCIDENTS/COOK-OFF INCIDENTS

THIS IS ALL THE INFORMATION AVAILABLE AT THE MOMENT. WE ARE TRACKING ANY AVAILABLE SOURCE FOR INFORMATION. OUR DCSLOG IS AWARE OF THE SITUATION. WE WILL BRIEF THE USASPC CoS.

* June 1995: The 10 SFG(A) reported two incidents of "cook-off's" with the M-4; no injuries.

* September 1995: The 1/1st SFG(A) reported problems with "cook-off's" and various durability problems during a training mission in the Republic of Korea. Quality Deficiency Report's (QDR) submitted thru channels by unit.

* May 1996: The 7th SFG(A) reported malfunction (weapon exploding) during training at Ft. Bragg, NC.

* August 1996: The 3rd SFG(A) reported a problem associated with rounds lodging in weapon causing destruction of weapon during a training mission in Africa. One soldier injured by shrapnel from exploding weapon. Unit imposed a cease-fire until USAEUR personnel could investigate. The findings of the investigation are unknown, however, the incident and continuation of the unit's self-imposed cease-fire caused an excess of ammunition to be left over at the end of the mission.

* August 1996: 1/75th RGR: Unit reported cook-off during a live-fire ambush exercise. Soldier shot self in finger during recovery of equipment (magazines). Incident could result in a possible permanent partial disability (loss of finger).

* August 1996: (most recent incident) 5th SFG(A) reported an M-4A1 damaged by a cook-off during a live fire exercise at Ft. Bliss, Texas. The soldier attempted to clear the malfunction when the cook-off occurred. The cook-off damaged the upper receiver and jammed the bolt carrier to the rear. The report received mentioned a second weapon damaged in a separate incident (the range commander suspended any further firing of ammo [lot # LC92J103004]).

USASOC Safety Office submitted a message to the field reference dated 20 May 96 (201327Z May 96) subject: **Reporting Requirements Associated with Weapons or Munitions Malfunctions, Misfires, or Hangfires** to facilitate capturing any M-4A1 carbine incident.

We understand that Rock Island Arsenal is studying the problem and we are trying to contact them to capture any initial findings.

SERIOUS INCIDENT REPORT

1. DATE TIME GROUP: 192110Z AUG 96

2. LOCATION: DONA ANA RANGE COMPLEX, FT. BLISS TX - RANGE 52.

3. PERSONNEL AND EQUIPMENT INVOLVED: M4 RIFLE AND SSG EDWARD C. BAKER

4. UNIT ASSIGNED AND UNIT IDENTIFICATION CODE (UIC):
(UNIT): B CO, 2/5TH SFG(A) (UIC): WH05B0

5. CLASSIFICATION OF ACCIDENT AND TOTAL COST: NOT KNOWN.

6. PERSONNEL INVOLVED/INJURED: NO INJURIES.

NAME		RANK
EDWARD C.BAKER	[redacted]	SSG
STEVEN L. SCHMIDT		WO1 (OIC OF RANGE 52)
RICHARD D. STEPHENSON		MSG (RSO OF RANGE 52)

PII Redacted

7. ON OR OFF DUTY: ON DUTY.

8. WAS ACCIDENT DUE TO TRAINING: YES, IT OCCURED DURING THE CONDUCT OF A M4 CARBINE RANGE.

9. ACTION BEING PERFORMED AT TIME OF ACCIDENT: SSG BAKER WAS FIRING M4 CARBINE IN THE AUTOMATIC MODE WHEN THE BARREL RUPTURED.

10. EXTENT OF INJURIES OR PROPERTY DAMAGE: THERE WERE NO INJURIES. ONE M4 CARBINE, SN W301894, HAS BARREL, HAND GUARDS, AND GAS TUBE DAMAGED BEYOND REPAIR.

11. NARRATIVE REPORT OF THE CIRCUMSTANCES OF THE ACCIDENT: SSG EDWARD C. BAKER WAS CONDUCTING RANGE FIRE USING BALL AMMUNITION ON RANGE 52, DONA ANA RANGE COMPLEX, FT. BLISS, TEXAS. WO1 STEVEN L. SCHMIDT WAS RANGE OIC, AND MSG RICHARD D. STEPHENSON WAS RANGE RSO. SSG BAKER FIRED APPROXIMATELY 15 ROUNDS FOR ZEROING, 40 ROUNDS FOR QUALIFICATION, AND THEN TOOK A 20-30 MINUTE BREAK BEFORE CONTINUING TO FIRE. OVER THE NEXT 30 MINUTES, HE FIRED APPROXIMATELY 270 ROUNDS, BOTH SEMI AND FULL AUTOMATIC, AT KNOWN DISTANCE TARGETS. AFTER ANOTHER 20-30 MINUTE BREAK, HE FIRED APPROXIMATELY 240 ROUNDS, USING 3-5 ROUND AUTOMATIC BURSTS, AT KNOWN DISTANCE TARGETS. AFTER TAKING ANOTHER 20-30 MINUTE BREAK, HE FIRED APPROXIMATELY TWO MAGAZINES ON AUTOMATIC, USING SHORT BURSTS. WHILE FIRING A THIRD MAGAZINE, HIS BARREL RUPTURED, SHATTERING THE HAND GUARDS AND BENDING THE GAS TUBE. HE IMMEDIATELY PUT THE WEAPON DOWN AND REMOVED THE MAGAZINE. NO ONE WAS INJURED. THE INCIDENT OCCURED AT 192110 Z AUG 96.

THE ROUND HOUED THE TOP PORTION OF THE BARREL APPROXIMATELY 5 INCHES FROM THE CHAMBER, THE THINNEST PART OF THE BARREL. THE ROUND RIPPED A 1½ INCH LONG BY 1/8 INCH WIDE RUPTURE IN THE BARREL. THE GAS TUBE WAS BENT AND THE HAND GUARDS DESTROYED. UPON FURTHER INSPECTION, WE NOTICED THAT THE FLASH SUPPRESSOR WAS LOOSE AND COULD BE UNSCREWED BY HAND.

12. ACTIONS TAKEN BY THE REPORTING UNIT: COMMANDER NOTIFIED 2/5TH SFG(A) AND DONA ANA RANGE CONTROL.

13. INDIVIDUAL TO BE CONTACTED FOR FURTHUR INFORMATION:

CPT DAVID M. WITTY	DONA ANA RANGE	B CO.2ND/5TH SFG(A)	DSN 979-0353
SGM CLINTON L.QUEEN	DONA ANA RANGE	B CO.2ND/5TH SFG(A)	DSN 979-0353
MSG KEN W. BARRIGER	DONA ANA RANGE	B CO. 2ND/5TH SFG(A)	DSN 979-0353

14. ADDITIONAL INFORMATION/REMARKS: THE COMMANDER BELIEVES THIS INCIDENT OCCURED BECAUSE OF DEFECTIVE AMMUNITION OR A DEFECTIVE BARREL. WEAPON WILL REDEPLOY TO FT.CAMPBELL FOR FURTHER INSPECTION.

ORIGINATOR: KENNETH W.BARRIGER, MSG, USA, OPNS NCO
RELEASED BY: DAVID M. WITTY, CPT(P), SF, COMMANDING, [signature]
2003062 Aug 96

USASFC(A) STAFF ACTION SUMMARY SHEET

SUBJECT: M-4 RIFLE EXPLODED IN BOTSWANA DURING FLINTLOCK II B				DATE: 12 AUG 96
TO	INITIALS	DATE	COMMENT	POC, OFFICE, TEL #: CPT Daniels, 2-6107 AOSO-GCO-A
1. D, OPS	[signature]	12 Aug		
2. C, OPS	[signature]	12 Aug		
3. DG3				RETURN TO: G3
4. G3				
5. SAFETY	[signature]	12 Aug	will coord/Info DCS LOG	TASKER? YES/NO
6.				CONTROL #
7.				
8.				

SGS USE ONLY

DATE RECEIVED BY SGS:	LOGGED IN:	DATE OUT FROM SGS:	LOGGED

1. PURPOSE: To update the initial oprep-3 report on the 3rd SFG(A) M-4 explosion incident during Flintlock II B in Botswana.

2. DISCUSSION: MAJ DEGNON IMPOOSED A CEASE FIRE ON ALL M-4's UNTIL FURTHER INSTRUCTIONS ARE RECEIVED. THERE ARE 17000 RDS OF 5.56 REMAINING FOR TRAINING. MAJ DEGNON BELIEVES A ROUND WAS LODGED IN TE CHAMBER WHEN THE SECOND ROUND WAS FIRED CAUSING THE EXPLOSION.

   TAB C: Initial Oprep-3, 082200ZAUG96, Subject: Explosion/destruction of a M-4 Rifle, EXER//Flintlock II B//
   TAB B: Follow-up Oprep-3, 121350ZAUG96, Subject: Statement For Record, 3rd SFG(A) to USASFC(A), EXER//Flintlock II B//
   TAB A: Follow-up Oprep-3, 121500ZAUG96, Subject: Statement For Record, USASFC(A) to USASOC, EXER//Flintlock II B//

3. RESOURCE IMPACT: N/A

4. RECOMMENDATION: For your signature, Sir

FOR OFFICIAL USE ONLY

TON: 121500ZAUG96
POC: CPT DANIELS, ACOM CHIEF USASFC(A)
TELE: (910) 432-6107
FROM: CDRUSASFC(A) FT BRAGG, NC//AOSO-GCO-A//
TO: CDRUSASOC FT BRAGG, NC//AOOP-OP//
THE FOLLOWING STATEMENT WAS PROVIDED BY 3RD SFG(A) ON THE EXPLOSION/DESTRUCTION OF THE M-4 RIFLE:

STATEMENT FOR RECORD

I SSG AUBREY R. HAWKINS WAS AT THE RANGE FIRING MY M-4 AT APPROXIMATELY 1430-1445 7 AUG 96. SSG MORGAN AND MYSELF WERE FIRING AT VARIOUS TARGETS AND CYCLIC RATES. I FIRED THE FIRST MAGAZINE ON SEMI AUTOMATIC THAN CHANGED MAGAZINES AND FIRED THE SECOND MAGAZINE ON AUTOMATIC. WHEN I COMPLETED FIRING THE SECOND MAGAZINE, I LOADED A THIRD MAGAZINE AND PLACED THE WEAPON ON SEMI AND AIMED. I HEARD THE ROUND FIRE BUT I DID NOT THINK THAT THE ROUND EXITED FROM THE BARREL. I LOWERED THE WEAPON TO PERFORM IMMEDIATE ACTION WHEN THE WEAPON EXPLODED IN MY HANDS AND SENT HANDGUARD FRAGMENTS INTO MY FACE AND HEAD. NO INJURIES WERE SUSTAINED WHEN THE WEAPON EXPLODED. I THEN PULLED IMMEDIATE ACTION ON THE WEAPON AND CLEARED IT AND PUT THE WEAPON ON SAFE. I CALLED A CEASE FIRE AND MOVED BACK TO THE TENT AREA.

WEAPON SERIAL NO.	306033
NO. OF ROUNDS FIRED BEFORE	60
WHEN THE WEAPON WAS LAST FIRED	THE DAY PRIOR
WHEN WAS THE WPN LAST CLEANED	THE NIGHT PRIOR
RATE OF FIRE	SEMI
LOT NO. OF AMMO	LC-941-006 606/M193 BALL
CAUSE IF KNOWN	ROUND LODGED IN THE BARREL

FOR THE ACofS, G3:

WERNER C. KRUEGER
LTC, GS
Chief, Operations Division

MEMORANDUM FOR RECORD. 13 MAY 1996

SUBJECT: MALFUNCTION REPORT.

MALFUNCTION REPORTED BY: Bill Bowden, TACOM-ARMAMENT LAR.

A. LOCATION OF MALFUNCTION: Range 66F, Ft. Bragg, NC.

B. IDENTIFICATION OF UNIT: C Co, 2d Bn. 3d SFG, USASOC, fT. Bragg, NC.

C. DATE AND TIME OF MALFUNCTION: 06 May 96, 1830 Hrs.

D. IDENTIFICATION OF WEAPON/ AMMUNITION:

WEAPON: Carbine, 5.56mm M4A1, NSN: 1005-01-382-0953, SN: W305902.
AMMUNITION: DODAAC #: A066, 5.56mm Ball, LOT NUMBER: LC95C0005-612.

E. NUMBER OF FATALITIES/INJURIES: None.

F. PROPERTY DAMAGE: Barrel Assy, PN: 9390009
Guard Hand 2ea NSN: 1005-01-234-2297
Gas Tube, 1 ea, NSN: 4710-01-233-8637

G. DESCRIPTION OF MALFUNCTION: The operator had been firing at a sustained rates of more then 300 rounds per minute. He was firing on his 4th 30 round magazine when a round blew out the left side of the barrel, approximately 4 3.4 inch forward of the breech.

H. OTHER INFORMATION CONSIDERED PERTINENT: Inspection of the weapon by this LAR, show excessive heat to the point that the phosphate coating was discolored. The barrel was bent to the right about 5 to 10 degrees. The hole in the barrel was approximately 1 ½ inches long and 1 inches wide. The gas tube was bent upward and to the right. The top hand guard was broken in two places at the rupture point. The bottom handguard inner and outer liners was deformed.

1. WAS ANY RADIATION DEVICES INVOLVED? No.

2. NAME OF ITEM: N/A

3. IF SO WAS THE SOURCE DAMAGED? N/A

4. IF DAMAGED WAS A WIPE TEST PERFORMED? N/A

I. DATE AND TIME OF REPORT PREPARATION:N: 15, May 1996, 1700 EDT.

J. SOURCE OF INFORMATION FOR THIS REPORT: Maj. Meddaugh, The Operator, SFC. Jones, C, Co, 2d Bn, 3d SFG, Mr. Al Whittekiend, USASOC Safety, Mr. Rock Roberton, USASOC DCSLOG.

Bill Bowden, TACOM-ARMAMENT LAR, 1ST COSCOM FT. BRAGG, NC, DSN: 236-0395, E-MAIL BBOWDEN.