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REPORT R-1646

DEVELOPMENT OF CASE, CARTRIDGE, ALUMINUM, FAT49E4

BY

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DA Project TS1-2

July 1962

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FRANKFORD ARSENAL
RESEARCH AND DEVELOPMENT GROUP
PITMAN - DUNN LABORATORIES
PHILADELPHIA 37, PA.

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DA Project TS1-2

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Frankford Arsenal, Philadelphia 37, Pa.

July 1962

OBJECT

To design, develop and fabricate a satisfactory 7.62mm aluminum cartridge case by the blank, cup and draw process; to assemble sufficient cartridges, 7.62mm, Ball, M59 type with aluminum cartridge cases for firing tests for case evaluation.

SUMMARY

The 7.62mm aluminum cartridge case was designed, developed and evaluated. Initial development utilized regular brass cartridge case tooling with minor changes. Modifications to the initial cartridge case design eliminated problems encountered during fabrication. Various firing casualties such as primer leaks, blown primers and gas eroded heads were encountered during testing in rifles and machine guns. Changes in heat treatment, the type of propellant and primer used and a closer control of the head area dimensions of the case resulted in the fabrication of a 7.62mm aluminum cartridge case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Cartridge, 7.62mm, FAT49E4.

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INTRODUCTION

As part of the overall aluminum cartridge case project at Frankford Arsenal, development was initiated of 7.62mm aluminum cartridge cases by the blank, cup and draw process. With the experience gained in the fabrication of the other sizes of aluminum cartridge cases by the blank, cup and draw process, it was believed that the development of the 7.62mm aluminum cartridge case could be accomplished with a minimum of difficulty. In September 1955, $15,000. was allotted from RAD Order 5040-5412-07-40101 (TS1-2) for the design, development and fabrication of approximately 10,000 7.62mm aluminum cartridge cases under DED Program No. 7-56, appendix A.

The regular tooling for the 7.62mm brass cartridge case was modified to accommodate the peculiar characteristics of the aluminum alloy used to fabricate these cartridge cases. A four-draw process for the fabrication of the 7.62mm FAT49E4 aluminum cartridge case was developed using the caliber .30 brass cartridge case machine equipment.

DISCUSSION

1. In September 1955, initial design work toward development of an acceptable 7.62mm aluminum case by the blank, cup and draw process was initiated under R&D Program No. 7-56. A quantity of 7075 aluminum alloy strip 0.180" x 3.0" x 48.0" was available at this Arsenal. This strip was annealed at 750°F for two hours and rolled to a required thickness of 0.160" ± 0.001". The material was again annealed at 750°F for two and one-half hours, slow cooled and blanked and cupped in a double action press. The tooling for this operation was the same as that used for the 7.62mm brass cup with the exception that the radius of the cupping die was increased from 0.560" to 0.600". The cups were examined under 2X magnification for fine cracks or splits, particularly at the inside bottom of the cup and for cracks at the inside

radius. Remaining tooling required was that normally used for the fabrication of the 7.62mm brass cartridge case four-draw process, with slight modifications. The machine equipment utilized was that normally used for fabrication of 7.62mm brass cartridge cases.

2. Approximately 550 cartridge cases were fabricated in this fashion, which were essentially the same in design as the 7.62mm brass cartridge cases except as shown in table 1.

Table I

Dimensions	Brass Case	Aluminum Case
Min. Wall Thickness (From Inside Base)	(Dwg C7553738)	
.120"	.032"	.040"
.370"	.023"	.029"
.620"	.020"	.021"
1.310"	.010"	.012"
Head to Datum Length	1.634" - .006"	1.635" - .003"
Body-Shoulder Junction Radius	.08" R.	.135" R.
Primer Pocket Depth	.126 + .005	.135 + .005"

3. Fifty of these cases were assembled into cartridges using 45.4 grains of WC846.4 propellant and primed with Remington #39 primers. These cartridges were identified as Lot #1 and were used to establish and verify the charge. Results of these tests are included in appendix B, summary of which follows:

Charge Establishment

Velocity - f/s		Pressure - psi	
Mean Vel	2715	Mean Press.	48,600
Vel. Correction	+21	Press. Correction	-1600
Corr. Velocity	2736	Corr. Pressure	47,000
Ex. Var.	33	Ex. Var.	2200
S.D.	11		

The remaining 500 cases were primed with Remington #39 primers and assembled into Cartridge, Ball, M59 type using 45.5 grains of WC846.4 propellant. The cartridges were identified as Lot 762-2. These cartridges were fired at ambient temperature and also after conditioning for two hours at -40°F for function and casualty in the T161 machine gun and the T44 and T48 rifles. Complete firing data is included in appendix B. There was one casualty, a burned through side wall in the cold firing in the T161 machine gun. This casualty resulted in a gun stoppage.

4. A second lot of approximately 500 cartridge cases was fabricated to further evaluate the case design. The tooling was the same as that used in the fabrication of the first lot with the exception of the draw punches. The initial draw punches had too small a radius on the working end and when this radius was increased, the cracks at the inside of the base, which had been prevalent in the previous lot, were eliminated. These cases were primed with Remington #39 primers and assembled into cartridges using 45.4 grains of WC846.4 propellant. This lot of cartridges was identified as 762-3.

5. The cartridges of Lot 762-3, after conditioning at ambient and -40°F temperatures, were fired for function and casualty in the T161 and T65 machine guns and the T44 and T48 rifles. There was one partial rupture and one burn through in the cold firing in the T65 machine gun. Complete firing data is included in appendix B.

6. In Lots 762-1, 2, and 3, the regular 7.62mm brass cartridge case tooling had been modified for the fabrication of the 7.62mm aluminum cartridge case components. Now new tooling incorporating all prior modifications was made and used to fabricate 3500 of the cases of most recent design for more extensive tests. These cases had the same basic case design as Lot 762-3. A copy of the drawing of Case, Cartridge, FAT49 type is included as figure C-1. The 3500 aluminum cartridge cases were primed with Remington #39 primers and assembled into cartridges using 45.5 grains of WC846.4 propellant. These cartridges were identified as Lot 762-4.

7. The 3500 cartridges of Lot 762-4 were fired at ambient temperature and also after conditioning for two hours at -40°F and +165°F, for function and casualty in the T65 and T161 machine guns and the T44 and T48 rifles. Twenty cartridges each were fired both wet and dry for velocity. Twenty drilled cartridges were also fired for pressure with velocity measured simultaneously. Complete firing data is included in appendix B, a summary of which follows:

T65 Machine Gun						T161 Machine Gun					
Primer Leaks			Rim Shears			Gas Eroded Heads			Ruptures		
H	C	A	H	C	A	H	C	A	H	C	A
204		8	1			1*					1

*Gun stoppage NOTE: Also, 9 severely stretched cases on the verge of rupture in the cold test in the T161 machine gun.

8. It was observed from the results of the tests of Lot 762-4 that a sharp angle existed on the inside of the case wall where the two tapers on the fourth draw punch met. Inadvertently, the blend radius was omitted when this punch was fabricated. This is believed the cause of the nine severely stretched cases which were very close to ruptures, encountered in the cold firing in the T161 machine gun. Two approaches were decided upon:

a. Reworking the existing fourth draw punch to include a blend radius (see fig. C-2);

b. Fabricate a new fourth draw punch which incorporated a single taper, increasing case wall thickness at the midsection (see fig. C-3).

9. At this time, two new lots of aluminum strip had been obtained. One lot of strip had 7075 chemistry, but was of high purity grade, having been subjected to a sonic test which assured material with no flaws, dross, etc. greater than 1/64" size. The other lot of strip was of the same purity just described, but had modified chemistry. The allowable percentage spread of certain constituents was reduced, as listed below, the material still meeting the chemistry requirements of 7075 alloy:

Constituent	Composition Limits Spec. QQ-A-283	Composition Limits for Special Material for this Program
Iron	0.7 Max.	0.20 Max.
Silicon	0.5 Max.	0.10 Max.
Chromium	0.18 - 0.40	0.17 - 0.20
Manganese	0.3 Max.	0.05 Max.

10. Accordingly, four lots of cases were fabricated utilizing both fourth draw punch designs mentioned and both types of aluminum strip. Identity of these lots is as follows:

Case & Ctg Lot No.	Quantity Made	Ctg Case Dwg.	Material
762-5	3400	FB38671	High Purity, Special Chem.
762-6	3500	FB30594	High Purity, Special Chem.
762-7	5200	FB8671	High Purity, Commercial
762-8	2600	FB30594	High Purity, Commercial

Cartridges were assembled with these cases using Remington #39 primers, 45.8 grains of WC846 propellant and M59 ball bullets. Extensive function and casualty testing was performed on the cartridges from each lot after conditioning for two hours at hot, cold and ambient temperatures in the T44 and T48 rifles and the T161 and T65 machine guns. In addition, pressure and velocity tests were conducted on cartridges from each lot. Detailed data of these tests is included in appendix B, a summary of which follows:

Lot 762-5

	Primer Leaks	Eroded Heads	Blown Primers	Splits
H	560	18		
C	25	1		1
A	20	0		

Lot 762-6

	Primer Leaks	Eroded Heads	Splits	Ruptures
H	199	10	24	16
C	0	0	1	
A	6	2	25	25

Lot 762-7

	Primer Leaks	Blown Primers	Eroded Heads	Ruptures
H	547	8	17	93
C	48	0	0	1
A	35	0	0	46

Lot 762-8

	Primer Leaks	Burn Throughs	Eroded Heads	Ruptures	Splits
H	533	1	27	3	0
C	42	0	0	1	1
A	39	0	0	2	0

11. From the tests results of the four previous lots of cartridges, it was believed that a heavier web thickness might eliminate the head area defects encountered. Accordingly, fifty cases were fabricated using the special chemistry strip but with a web thickness increased from .059" to .090". All of these cases were primed with Remington #39 primers; half the cases were assembled into ball cartridges using 45.8 grains of WC846 propellant and the remainder were assembled into ball cartridges using 39.5 grains of IMR 4475 propellant. These cartridges were identified as Lots 11-A-1 and 11-A-2 respectively.

12. The cartridges of Lots 11-A-1 and 11-A-2 were conditioned for two hours at +165°F and then fired for function and casualty in the T44 rifle. In the firing results of Lot 11-A-1 there were 3 primer leaks and 11 blown primers with gas eroded heads. The firing of Lot 11-A-2 resulted in 6 primer leaks, 2 complete rim shears and 4 blown primers with gas eroded heads. Complete firing data is included in appendix B.

13. At this time, it was decided to determine the effect of various parameters upon primer area firing casualties. These parameters included use of primer vent seals, various propellants, smaller primer pocket diameter and one-piece vs. three-piece heading punches. (Formerly all cases fabricated under this project had been made using three-piece heading punches; use of a one-piece heading punch would permit incorporation of a slight "lead-in" radius at the entrance to the primer pocket).

14. All of the cases were fabricated from 7075-T6 special chemistry strip, and were assembled into M59 type cartridges using Remington #39 primers and propellant charge as listed in the following

table. All cartridges listed were conditioned at +165°F for two hours, prior to testing in T44 rifles and T52 machine guns, since this had been determined to be the condition at which incidence of primer area casualties was maximum. Complete firing data is included in appendix B; a summary of the results follows:

Lot No.	Heading Punch	Propellant Type	Propellant Chg. Grs.	Primer Vent Seal	Primer Pocket Dia. (in)	Ctgs Fired	Primer Leaks	Gas Eroded Heads	Blown Primers	Rim Shears
12A-1	3-Piece	WC846	45.8	No	.2093 + .0005	110	52	14	0	2
12A-2	3-Piece	HES5232.99	39.5	No	.2093 + .0005	90	27	9	0	0
12B-1	1-Piece	WC846	45.8	No	.2093 + .0005	95	54	5	0	2
12B-2	1-Piece	HES5232.99	39.5	No	.2093 + .0005	107	19	0	0	0
12B-3	1-Piece	WC846	45.8	Yes	.2093 + .0005	100	91	10	8	0
12C-1	3-Piece	WC846	45.8	No	.2078 + .0005	80	50	2	0	5
12C-2	3-Piece	HES5232.99	39.5	No	.2078 + .0005	100	18	4	0	0

15. Results of these tests indicated the following:

a. HES 5232.99 propellant, in combination with #39 primers yielded somewhat better performance insofar as primer area casualties, than did WC846 propellant in combination with the same primer.

b. There was no significant difference in primer area casualties in the use of either the one or three-piece heading punch.

c. No significant difference in performance insofar as primer area casualties was obtained between standard diameter and reduced diameter primer pockets.

d. Use of cellophane primer vent seals resulted in increased primer area casualties.

16. In order to more carefully investigate the effect, if any, of various primer pocket diameters, approximately 400 cases were fabricated from premium quality, special chemistry strip, in which the primer pockets were machined to exact sizes as listed in the following table. These cases were primed with Remington #39 primers and assembled into cartridges using 45.8 grains of WC846 propellant. The pockets had very smooth walls with no scratches or bulges that might provide an avenue of escape for gases. The cartridge lots were identified as follows:

Lot No.	Pocket Diameter	No. of Rounds
13-A-1	.2080" ± .0001	95
13-A-2	.2085" ± .0001	99
13-A-3	.2090" ± .0001	104
13-A-4	.2095" ± .0001	102

After verification of charge and conditioning at +165°F for two hours, Lots 13-A-1, 2 and 3 were fired for function and casualty in the T44 rifle. After similar conditioning Lot 13-A-4 was fired for function and casualty in the T65 machine gun. Although extreme care was

taken in the machining of the primer pockets, the firing tests resulted in a large percentage of primer leaks. Detailed firing results are contained in appendix B., a summary of which follows:

	Primer Leaks	Eroded Heads
Lot 13-A-1	49	6
Lot 13-A-2	60	4
Lot 13-A-3	23	1
Lot 13-A-4	67	3

17. A study was then initiated to determine whether maximum strength was being developed by the solution heat treatment and artificial aging being given the cartridge cases.

18. Approximately 715 cartridge cases were fabricated from 7075 premium quality, special chemistry strip. These cases were divided into lots which underwent different solution temperatures and time at the temperatures, as listed below and as shown in photomicrographs, figures D-1 through D-9. To help guard against development of structure, the air agitator was turned off in the water quench and the water was rapidly circulated by increasing the water velocity through the water inlet valve. Also the cases were artificially aged immediately after the solution quench treatment.

NOTE: Even though firing results showed little improvement, it was thought these procedural changes beneficial and they were used in the fabrication of cases for the balance of tests under this project.

The cases were primed with Remington #39 primers and assembled into cartridges with 45.8 grains of WC846 propellant. The lots of cartridges, assembled with cases of different lots according to varying solution heat treatment were identified as follows:

Lot No.	Solution Heat Treatment	No. of Rounds
13-B-1	860°F/30 Min	105
13-B-2	870°F/25 Min	76
13-B-3	870°F/30 Min	87
13-B-4	870°F/35 Min	88
13-B-5	870°F/40 Min	104
13-B-6	880°F/30 Min	66
13-B-7	890°F/25 Min	102
13-B-8	890°F/30 Min	88

19. After conditioning for two hours at +165°F, the eight lots of cartridges were fired for function and casualty in the T44 rifle and T52 machine gun. Complete firing results are included in appendix B, a summary of those results follows:

	Primer Leaks	Gas Eroded Heads
13-B-1	20	29
13-B-2	22	16
13-B-3	22	15
13-B-4	13	10
13-B-5	30	50
13-B-6	29	12
13-B-7	15	9
13-B-8	13	8

The cartridges developed many firing casualties and there was no apparent difference in any of the heat treatments in relation to the firing results.

20. The next approach in elimination of the priming area firing casualties was to determine if type of primer had any significant effect on these casualties. It was decided to fabricate two lots of cases and arm them with #72 and #39 primers. Upon examining the #39 primers which were intended for use, it was observed that the edges of the cup were rough and it was thought that such edges might be possible avenues of escape for the primer and/or propellant gases. Accordingly, some #39 primers were reworked to remove the rough edge. The primed cases were assembled into cartridges using 45.8 grains of WC846 propellant and the lots were identified as included in table II. Three lots of cartridges were conditioned at +165°F for two hours prior to firing for function and casualty in the T44 rifle. Cartridges from lot 13-C-2 were also fired for function and casualty in the T65 machine gun. Results of the firing are shown in the following table:

Table II.

Lot No.	Primer	No. of Rounds	Primer Leaks	Gas Eroded Heads	Blown Primers
13C1	#72	72	8	0	0
13C2	#39	59	11	17	3
13C3	#39 w/rough edges removed	56	16	28	0

21. In the development of the various calibers of aluminum cartridge cases at this arsenal, several alloys and conditions of strip have been used. It has been determined, through fabrication experience at Frankford Arsenal, that the use of 7075 alloy produced the best results. In former cartridge case fabrication T-6 condition strip had been used. It was believed, at this time, that

7075 alloy "O" condition strip might eliminate some difficulties encountered in fabrication. The 7075-0 strip is received in a long cycle annealed condition to preserve the soft, workable properties whereas the 7075-T6 material is received in the age hardened condition. It was believed, with the use of the 7075-0 material, that fabrication could start on the "as received" strip without annealing prior to use and that the workable properties of the material would insure results superior to those possible in the use of the 7075-T6 strip even after annealing. Contrary to this the cups processed from 7075-0 material were unsatisfactory and only slightly improved cups would be processed after the "as received" 7075-0 strip was annealed. Photomicrographs (figs. D-10 and D-11) were taken of the 7075-0 material "as received" and the 7075-T6 material after annealing. The constituents in the 7075-0 material "as received" were large and not oriented directionally. Also the photomicrographs suggest a greater solution of alloying elements. These facts account for the poor cupping quality even though the hardness readings indicated a fully annealed condition. The final solution to eliminate the cracks in the cupping operation to attain a satisfactory structure was by giving the 7075-0 material a solution quench treatment at 890°F for 30 minutes followed by a water quench and these followed by an anneal; after this treatment the material cupped perfectly. A photomicrograph of resultant conditions is shown in figure D-12.

22. It was decided to determine what effect, if any, vent hole diameter had upon primer area firing casualties. A small control lot of cases was fabricated from 7075-0 material with the regular vent hole diameter of .078 + .004. Fifty-five cases were fabricated from the same strip but had an enlarged vent hole diameter of .1093 + .004. All were assembled into cartridges with #39 primers and 45.8 grains of WC846 propellant. Cartridges assembled with cases having regular vent holes were identified as Lot 14A1; those having an enlarged vent hole were identified as Lot 14A2. After conditioning for two hours at +165°F, the cartridges of both lots were fired for function and casualty in T44 rifle. The firing of Lot 14A1 resulted in 3 small primer leaks while 14A2, with the enlarged vent hole, developed 4 small and 6 large primer leaks when fired.

23. Inasmuch as the firing results still showed primer area casualties, it was decided to discontinue efforts to modify the case dimensionally or structurally in an attempt to overcome primer area casualties, but rather to go, as a last resort, to the use of the

steel adapter cup-type primer which had proved fruitful in eliminating primer area casualties in other sizes of small arms aluminum cartridge cases. A small quantity of Remington #72 primers with copper plated steel adapter cups were available at this arsenal from a prior aluminum case contract. Accordingly, approximately 180 cartridge cases were fabricated from 7075-T6 condition special chemistry premium quality strip. Since the Remington #72 primer with steel adapter cup requires a large diameter primer pocket, the pockets of these cases were increased to .2295" + .0005". A drawing of Case, Cartridge, FAT49E4 with this enlarged primer pocket is shown in figure C-4. These cases were made with a three-piece heading punch.

24. Eighty-seven of these cases were vented with a regular vent hole punch .078 + .004" diameter and 92 with an enlarged vent hole punch .1093" + .004". All cases were primed with Remington #72 adapter cup-type primers and assembled into cartridges using 40.0 grains of HES 5232.99 propellant. Cartridges assembled with cases having regular vent holes were identified as Lot 15A and those assembled with cases with enlarged vent holes were identified as Lot 15B. Cartridges of both lots were fired for function and casualty in the T65 machine gun with the ammunition at both ambient and +165°F. Velocity and pressure firings were performed as controls. Complete firing data is included as appendix B. There were no case casualties of any sort in any of these tests.

25. Approximately 800 cases were fabricated from 7075-0 strip using a three-piece heading punch. These cases were primed with Remington #72 primers, assembled with steel adapter cups. They were assembled into cartridges using 40.0 grains of HES 5232.00 propellant. The cartridges were identified as Lot 16-0. A small lot of approximately 45 case rejects were assembled into cartridges to be fired for informational purposes. This lot of cartridges was identified as Lot 16-0 rejects. Two hundred and forty cartridges of Lot 16-0, after conditioning for two hours at +165°F and 70°F were fired immediately for function and casualty in the T65 machine gun. The balance of the cartridges of Lots 16-0 and 16-0 rejects were fired for function and casualty at ambient temperature in the T44 rifle and the T65 machine gun. Complete firing data is included in appendix B. There were 3 rim shears and 2 case (SJ) splits but no primer leaks. Approximately 900 cases were fabricated from 7075, Condition T-6 commercial chemistry strip. A three-piece heading punch was used. These cases were primed with Remington #72 primers with steel adapter cups.

a. Approximately 160 cases had rough mouths due to dull tooling in the final trim. These cases were assembled into cartridges using 40.0 grains of HES 5232.99 propellant. This cartridge lot was identified as 16-TR.

b. Seven hundred and twenty cases were assembled into cartridges using 40.0 grains of HES 5232.99 propellant. These cartridges were identified as Lot 16-T.

c. Four hundred and eighteen cases were rejected from the 16 case lots because of large head diameters. These cases were fabricated both from 7075-0 and 7075-T6 strip. After reaming the primer pockets where necessary, the cases were primed with Remington #72 primers with steel adapter cups, and assembled into cartridges using 40.0 grains of HES 5232.99 propellant and identified as Lot 16-TO.

26. The cartridges of Lots 16-TR, 16-T and 16-TO were fired for function and casualty, hot, cold and ambient in the T44 rifle and T65 machine gun. Complete firing data is included in appendix B, a summary of which follows:

Casualties

Lot No.	Gun	Rim Shears			Splits			Ruptures			Burn Throughs		
		H	C	A	H	C	A	H	C	A	H	C	A
16-TR	T44	0	0	0	5	0	2	0	0	0	5	0	0
16-T	T65	8	0	0	4	1	1	1	1	0	4	0	0
16-TO	T65	No Casualties											

Cartridge lots 16 and its sub-lots totaled approximately 2000 cartridges. The firing of these cartridges resulted in 30 casualties as summarized above. These casualties are serious because they caused 13 gun stoppages. However, the cases were carefully checked and soft spots were found which would cause weakened areas in the case wall. Further investigation disclosed that the

heat treating equipment was not functioning properly thus causing the soft spots. Since there were no such casualties in lots 11 through 15 it was assumed that equipment failure caused improper heat treatment with resultant casualties. There were no primer leaks. Upon completing the fabrication of all lots of aluminum cartridge cases, prior to priming, the cases were anodized using the alumilite process. A copy of this anodizing procedure is included in appendix E. The cases were then mouth annealed, the mouths of the cases being immersed 1/4" for 8 seconds in a saline solution maintained at 700°F and then quenched in tap water. The cases were then "dag" coated as a preservative and as an aid to chamber extraction.

CONCLUSIONS

It is concluded that the 7.62mm, FAT49E4 aluminum cartridge case has been successfully developed. The causes of various case casualties, developed in the firing of the 7.62mm cartridges assembled with these cases, have been eliminated. The greatest problem, that of the primer area defects has been solved by the use of the copper plated steel adapter cup-type primer.

Tooling for fabricating the caliber 7.62mm, FAT43E4 cartridge cases by the blank, cup and draw process has been developed. This tooling is listed on Plan of Work, see figures C-5, C-6-1, C-6-2, C-6-3 and C-7.

A blank, cup and draw process for the fabrication of the 7.62mm, FAT49E4 aluminum cartridge case was developed. This process is based upon the use of equipment available in the fabrication of the 7.62mm brass cartridge case. In the event of large scale fabrication, changes in the feeding mechanism would be necessary due to the lightness in weight of the aluminum components.

Distortion and warpage of aluminum case components can be greatly minimized by solution heat treating the components prior to the tapering operation. Because of the rapid aging characteristics of 7075 aluminum alloy, it is necessary that the tapering operation be performed within four hours after the solution heat treatment.

A minimum head and sidewall hardness of Rockwell 30T 70 is necessary for satisfactory functioning of cartridges assembled with aluminum cases.

Primer area casualties, caused by primer leaks and blown primers, have been practically eliminated through the use of the copper plated steel adapter cup primer. The key to the elimination of the head area casualties without the use of the adapter cup primer should be in the development of the proper case head hardness and continuity of the anodize coating on the surfaces of the case base interior and the primer pocket.

RECOMMENDATIONS

Additional lots of 7.62mm aluminum cartridge cases should be fabricated and assembled into cartridges for more extensive firing tests. The following recommendations should be considered in the fabrication of these cases:

The use of 7075, Condition T-6, premium quality, commercial chemistry, aluminum strip.

An increase in web thickness to strengthen head area.

The use of a fourth draw punch having a .001"/inch single taper.

The adoption of the three-piece heading punch in conjunction with the use of the Remington #72 primer with steel adapter cup and the adoption of the one-piece heading punch when the case is primed with the regular primer. The one-piece heading punch gives a slight radius at the mouth of the primer pocket as a lead-in for the regular primer.

The development of a more uniform, closely controlled heat treatment and a quicker solution quench after heat treatment should be devised. Also a rapidly circulating quench would be preferable to the air agitated quench. The elimination of delay between solution quench treatment and artificial aging should also be accomplished.

The continued use of the Remington #72 primer with copper plated steel adapter cup at the present time.

A continued effort to develop a primer pocket which would permit the use of the regular primer without resultant primer leaks. This could possibly be accomplished through pocket and heading in two operations rather than single shot heading. The elimination of any taper in the primer pocket might provide the answer.

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APPENDIX A

No. 7-56 13 September 1955

DEVELOPMENT ENGINEERING DIVISION

RESEARCH AND DEVELOPMENT PROGRAM

Project:	TS1-2	FA 3-2-6-9
Priority:	1C-368	
Charge:	RAD 5040-5412-07-40101	Ex. O. 51702-02-518 Est. Cost: $15,000.00
Project Director:	Mr. E. W. Read	
Project Engineer:	Mr. S. Miller	
Coordinator:	Mr. H. Burgess	
Subject:	Case, Cartridge, Cal 7.62mm Type, Aluminum	
Object:	a. In connection with engineering design studies and evaluations for developmental ammunition and related material, to develop a satisfactory cal 7.62mm aluminum cartridge case by the blank, cup and draw process. b. To make firing samples for preliminary design studies of cal 7.62mm aluminum cartridge cases made by the blank, cup and draw process.	

Introduction:

1. As part of the overall aluminum cartridge case project at this arsenal, it is desired to develop a satisfactory blank, cup and draw process for the fabrication of cal 7.62mm type aluminum cartridge cases. A maximum of 10,000 cartridge cases is to be made under this program.

2. The work to be performed under this program has been discussed with the following personnel:

Messrs.	A. Lippincott	F. Costello
	E. Olszanowski	L. Furmanski
	R. Donnard	J. Werst

Instructions:

3. SD-D: a. Prepare a drawing of the cal 7.62mm type aluminum case from data supplied by SD-M. Assign an FAT number to this drawing.

b. Prepare a drawing of cartridge, ball, caliber .30, T104E1 type, utilizing the case from par. 3.a. Assign an FAT number to this drawing.

c. Prepare drawings of necessary work and inspection gages for use in processing cal 7.62mm type aluminum cases as requested by SD-M.

d. Prepare tool drawings as requested by SD-M.

4. SM: Make necessary work and inspection gages as requested by SD-M, in accordance with drawings made by SD-D.

5. SP-3 (Mr. Dorsam): Have necessary tools made, as requested by SD-M, in accordance with drawings prepared by SD-D.

6. SZ: a. Using available strip stored in SZ, fabricate lots of cal 7.62mm type aluminum cartridge cases, according to Drawing No. C7553738, or, as directed by SD-M.

b. Upon receipt of mouth annealed cases from SS "Dag" coat case bodies and heads, allow to dry, and then deliver the coated cases, properly identified, to SL for priming and loading.

7. SW-2: Anodize the cases delivered by SZ in the manner prescribed by the equipment operating instructions. Deliver the cases, properly identified, to SK for inspection.

8. SK: a. Make measurement surveys of components as requested by SD-M.

b. I&G the cases delivered by SW-2. Deliver cases, properly identified, to SS.

c. I&G cartridges delivered by SL. Deliver cartridges, properly identified, to SF.

9. SS: Mount anneal the cases delivered by SK in the usual manner, or as directed by SD-M. Forward mouth annealed cases, properly identified, to SZ.

10. SL: a. Forward necessary components, properly identified, to SF for establishment of propellant charge.

b. Prepare machine loaded verification sample as directed by SD and deliver, properly identified, to SF.

c. Prime cases delivered by SZ with current production primers as directed by SD-M.

d. Load and assemble car ridges as directed by SD, using propellant of the current production lot. Deliver cartridges, properly identified, to SF.

11. SD (Mr. Beugless): Establish and verify charge for Cartridge, Ball, Cal 7.62mm, T104E1 type with aluminum case.

12. SX: Deliver propellant and primers, of current production lots, to SL, as requested.

13. SF: CAUTION: THE CARTRIDGES TO BE FIRED UNDER THIS PROGRAM ARE EXPERIMENTAL, HENCE TAKE ALL POSSIBLE PRECAUTIONS FOR THE SAFETY OF GUNNERS AND OBSERVERS.

a. Establish propellent charge for Cartridge, Ball, Cal 7.62mm, T104E1 type with aluminum case. Report results to SD.

b. Fire verification of propellent charge tests and report results to SD.

c. Fire other single shot, rifle and machine gun function tests as directed by SD-M.

14. SD-M: Make tests and perform such design, development and engineering duties as may be required for the performance of this program.

/s/ N. H. Gear
for J. PETERS

HRB/nfr

Account #1 B.DC.
B. De CASTRO

Copies to:
SP-1, Mr. Peters
SP-2, Mr. Penn
SD-D, SM, SP-3, SZ,
SW-2, SK(3), SS, SL,
SX, SD-M, SD, SD-A(2),
ORDIM, ORDTS, OAC
Messrs. Beugless,
Lippincott, Olszanowski,
Donnard, FCostello,
Furmanski, Werst, Fay,
Sprofera, SMiller, Burgess,
SP File (2), Cost Sect (3)
Selby
Sprofera
DiRenzo

/s/ Samuel W. Parnelle, Jr.
SAMUEL W. PARNELLE, JR.
Lt Col, Ord Corps
Chief, Small Arms Ammunition Dept

750/12 mos/30 Sept 56

APPENDIX B

FRANKFORD ARSENAL PROOF TESTING SECTION

VELOCITY & PRESSURE REPORT

POWDER W 846.4 | AMM. LOT /

ARMY LOT

CALIBER .30

CHARGE 45.4 grs

BULLET Ball

CASE Aluminum

OBJECT: Establish Charge

R&D P #7-56

PRIMER Rem #39

SPEC:

REF. RDS. 8-55

CTG. 783E2 L.R.

REC. NO.	BRL. NO.	TRFD.	A.L. 40633 CHG. 45.6
REC. NO. FA Universal #10	BRL. NO. R-51	TRFD. 70	C-357, B-426
REC. NO. FA Universal #10	BRL. NO. G-67	TRFD. 185	V.V. 2748 f/s
REC. NO.	BRL. NO.	TRFD.	P.V. 45,400 psi

	Ref		45.4		Ref			45.4	
1.	2731		2706		2725	47500		2701	48000
2.	2726		2701-		/2729	46300		-2688	48900
3.	2731		2734		2726	48900		2691	47600-
4.	2725		2717		2722	45800-		/2707	49800/
5.	2743/		2716		-2716	46300			
6.	2722								
7.	2719				13618	234800	Total	10787	194300
8.	2723				2724	48000	Mean	2697	48600
9.	2732						Pr.C.		-1600
10.	2714-						Cor P.		47000
11.									
12.	27266	Total	13574		13	3100	Ex.Var	19	2200
13.	2727	Mean	2715						
14.		V Cor	/21						
15.		Cor V	2736						
16.									
17.	29	Ex.Var	33						
18									
19.		S.D.	11						
20.									

REMARKS:

Rounds alternated

Lumiline #1
Counter #2

CHRONOGRAPH OR Bauldree W.O. 51702-02-518

CASES & PRIMERS OK GUNNER Fickenscher Proj. 3-2-6-9

DATE FIRED 11-17-55 FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP 931 REV MAR 51

ARMY-RARITAN ARSENAL (NNPC), METUCHEN, NJ-58-324

Powder: W 846.4	FRANKFORD ARSENAL PROOF HOUSE	PRIMER LOT
Charge: 45.4 grs	FUNCTION AND CASUALTY TEST	AMM'N. LOT 7.62 - 2
Primer: Rem #39	D.E.D.R. & D.P. No. 7-56	CALIBER .30 L.R.
	AUTOMATIC & SEMI-AUTOMATIC WEAPONS	BULLET Aluminum
		CARTRIDGE
		MFG. F.A.

GUN DATA

T-161 MG.

TYPE OF GUN	HANGFIRE	Lot #2 T-161			Lot #2 T-161		Lot #2 T-161	
NO. OF GUN		3			3		3	
ROUNDS IN GUN		4735			4766		4858	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		4735			4766		4858	
HEAD SPACE		-			-		-	
PIN PROTRUSION		-			-		-	
ROUNDS FIRED		15			31		22	
RDS. IN BURST OR CLIPS		15			31		22	
NO. OF BURSTS OR CLIPS		1			1		1	
GUNNER		Williams			Williams		Williams	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK			OK		*	

REMARKS: Normal Firing — Normal Firing — Cold Firing

*1 stoppage: Due to burned thru case Broke Extractor Test discontinued.

Lot #7.62 - 2

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C..
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
SM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas — W.O. 51702-02-518 — DATE FIRED 2 Jan 56

FOREMAN H. A. Fala — CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NRPC), METUCHEN, NJ-58-367

Powder: WC 846.4	FRANKFORD ARSENAL PROOF HOUSE	PRIMER LOT 762 -
Charge: 45.4 grs	FUNCTION AND CASUALTY TEST	AMM'N. LOT #2
Primer: Rem #39	D.E.D.R. & D.P.No. 7-56	CALIBER .30 L.R.
	AUTOMATIC & SEMI-AUTOMATIC WEAPONS	BULLET Aluminum
		CARTRIDGE
		MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	T-161	T-44	T-48		T-161	T-44	T-48
NO. OF GUN		3	1	055		3	1	055
ROUNDS IN GUN		4720	871	6522		4836	891	6542
NO. OF BARREL		1	1	1		1	1	1
ROUNDS IN BARREL		4720	871	6522		4836	891	6542
HEAD SPACE		-	2.186"	2.181"		-	2.186"	2.181"
PIN PROTRUSION		-	.053"	.056"		-	.053"	.056"
ROUNDS FIRED		70	20	20		70	20	20
RDS. IN BURST OR CLIPS		70	20	20		70	20	20
NO. OF BURSTS OR CLIPS		1	1	1		1	1	1
GUNNER		Williams	Williams	Williams		Williams	Williams	Williams

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK	OK	OK		OK	OK	OK

REMARKS: Normal Firing — Cold Firing

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20MM M24A1

RECORDER Seixas — W.O. 51702-02-518 DATE FIRED 11 Jan 56

FOREMAN H. A. Falla — CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPCI, METUCHEN, NJ-59-387)

Powder: WC 846

Charge: 45.4

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

DEDR and DP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 3

CALIBER 7.62mm

BULLET Ball

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-65	Normal T-44	Normal T-48		Cold T-65	Cold T-44	Cold T-48
NO. OF GUN		472850	1	055		472850	1	055
ROUNDS IN GUN		3915	1031	6682		4185	1261	6912
NO. OF BARREL		18	1	1		18	1	1
ROUNDS IN BARREL		3915	1031	6682		4185	1261	6912
HEAD SPACE		2.183"	2.186"	2.181"		2.183"	2.186"	2.181"
PIN PROTRUSION		.065"	.053"	.056"		.065"	.053	.056"
ROUNDS FIRED		135	40	40		135	40	40
RDS. IN BURST OR CLIPS		80-55	20	20		80-55	20	20
NO. OF BURSTS OR CLIPS		1-1	2	2		1-1	2	2
GUNNER		Gambino	Williams	Williams		Gambino	Williams	Williams

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS									
PRIMER PERFORATIONS									
LOOSE PRIMERS									
CASE SPLITS									
RUPTURE									
STRETCHES									
GAS FLASHES									
BREECH FLAMES									
BREECH SPARKS									
AMM. FUNCTION		OK	OK	OK		*	OK	OK	

REMARKS: * 1 Partial Rupture

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .30, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER King

W.O. 51702-02-518 DATE FIRED 15 Feb 56

FOREMAN John P. Worst

CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NRPC), METUCHEN, NJ-50-567

Powder:	WC 846.4
Charge:	45.5 grs
Primer:	Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT ____
AMM'N. LOT 762-4
CALIBER 7.62mm
BULLET Ball
CARTRIDGE ____
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-65	T-161	T-44	T-48		
NO. OF GUN	793756		472850	5	1112	055		
ROUNDS IN GUN	13710		6020	885	120	8212		
NO. OF BARREL	20		18	1	1	1		
ROUNDS IN BARREL	1400		6020	685	120	8212		
HEAD SPACE	2.183"		2.183"	-	2.187"	2.183"		
PIN PROTRUSION	.065"		.064"	-	.056"	.056"		
ROUNDS FIRED	250		300	200	120	120		
RDS. IN BURST OR CLIPS	50		100	100	20	20		
NO. OF BURSTS OR CLIPS	5		3	2	6	6		
GUNNER	Cantano		Balcer	Sokoloff	Sokoloff	Sokoloff		

GUN FUNCTION

GROUP (MS)	.7	.8	.6	.4	.7											
ZERO (MS)	11.0															

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES			* 9					
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION	OK			OK	OK	OK		

REMARKS:

* 9 STRETCHED CASES VERY SEVERELY STRETCHED. ON THE VERGE OF RUPTURE

Cold Firing

GM CAL. .30, B. M1917A1	R.U.S. CAL. .30 M1903A3	GM CAL. .50 M3 AC
GM CAL. .30, B. A. C.	PISTOL AUTO CAL. .45 M1911A1	GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4	GSM CAL. .45 M3-M3A1	GM CAL. .60 T59
GM CAL. .30, B. M1919A6	GM CAL. .22 M3-M4	GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2	GM CAL. .50, B. M2 AC	GA 20 MM M3
R.U.S. CAL. .30 M1	GM CAL. .50, B. M2 HB	GA 20 MM M24A1

RECORDER King & Williams W.O. 51702-02-11 DATE FIRED 22&23 Aug '56

FOREMAN ____ CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE) ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ

Powder: WC 846,4

Charge: 45.5

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 762-4
CALIBER .302
BULLET Ball M2
CARTRIDGE
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-65	T-161	T-48	T-44		
NO. OF GUN	793756		472850	5	055	1		
ROUNDS IN GUN	13460		5720	1085	8562	2673		
NO. OF BARREL	20		18	1	1	1		
ROUNDS IN BARREL	1150		5720	885	8562	2673		
HEAD SPACE	2.183"		2.183"	-	2.183"	2.186"		
PIN PROTRUSION	.065"		.064"		.056"	.053"		
ROUNDS FIRED	250		300	200	120	120		
ROS. IN BURST OR CLIPS	50		100	100	20	20		
NO. OF BURSTS OR CLIPS	5		3	2	6	6		
GUNNER	Pantino		Balcer	Sokoloff	Sokoloff	Sokoloff		

GUN FUNCTION

GROUP (MS)	.5	.4	.4	.5	.6													
ZERO (MS)	11.0																	

DEFECTS

Gas Eroded Head 1

PRIMER LEAKS	149		55					
PRIMER PERFORATIONS								
LOOSE PRIMERS	5							
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES			25%					
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION	*				OK	OK		

REMARKS:
* 1 Stoppage due to rim shear

Hot Firing

GM CAL. .30, B. M1917A1 — R.U.S. CAL. .30 M1903A3 — GM CAL. .50 M3 AC
GM CAL. .30, B. A. C. — PISTOL AUTO CAL. .45 M1911A1 — GM CAL .60 T17E5
GM CAL. .30, B. M1919A4 — GSM CAL. .45 M3-M3A1 — GM CAL. .60 T59
GM CAL. .30, B. M1919A6 — GM CAL. .22 M3-M4 — GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2 — GM CAL. .50, B. M2 AC — GA 20 MM M3
R.U.S. CAL. .30 M1 — GM CAL. .50, B. M2 HB — GA 20 MM M24A1

RECORDER King & Williams W.O. 51702-02-11 DATE FIRED Aug 56 22623

FOREMAN CHIEF BALLISTICIAN John P. Wenat

Powder: WC 846.4

Charge: 45.5 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R&DP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 762-4

CALIBER 7.62mm

BULLET Ball

CARTRIDGE

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-65	T-161	T-48	T-44		
NO. OF GUN	793756		472850	5	055	1		
ROUNDS IN GUN	14310		5120	705	8442	2553		
NO. OF BARREL	20		18	1	1	1		
ROUNDS IN BARREL	2000		5120	505	8442	2553		
HEAD SPACE	2.183"		2.183"	-	2.183"	2.186"		
PIN PROTRUSION	.065		.064"	-	.056"	.056"		
ROUNDS FIRED	600		300	200	120	120		
RDS. IN BURST OR CLIPS	50		100	100	20	20		
NO. OF BURSTS OR CLIPS	12		3	2	6	6		
GUNNER	Pantano		Balcer	Sokoloff	Sokoloff	Sokoloff		

GUN FUNCTION

GROUP (MS)	.5	.5	.5	.4	.4	.5	.5	.5	.5	.4	.5	.6						
ZERO (MS)	11.0																	

DEFECTS

PRIMER LEAKS	8							
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE Partial				1				
STRETCHES								
GAS FLASHES			25%					
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION					OK	OK		

REMARKS: Normal Firing

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER King & Williams

W.O. 51702-02-11 DATE FIRED 22&23 Aug 56

FOREMAN

CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-987

POWDER WC 846.4 | **FRANKFORD ARSENAL PROOF TESTING SECTION** | AMM. LOT 762-4

ARMY LOT | VELOCITY & PRESSURE REPORT | CALIBER 7.62mm

CHARGE 45.5 grs | OBJECT: Acceptance Test | BULLET Ball

CASE Aluminum | R&DP 7-56

PRIMER Rem #39 | SPEC: | REF. RDS. 8-55

CTG. A.P.30 T93E2 (L.R.)

REC. NO.	BRL. NO.	TRFD.	A.L. 40633 CHG. 45.6
REC. NO. F.A. Universal #9	BRL. NO. R-51	TRFD. 630	C-357 B-446 "I"
REC. NO.	BRL. NO.	TRFD.	V.V. 2748 FIS
REC. NO. F.A. Universal #9	BRL. NO. G-67	TRFD. 845	P.V. 45,400 psi

(cases drilled)

	Ref		Dry		Wet		Ref			Lot	
1.	2736-		2711		2691 -	/	2718	45700	/	2690	44600
2.			2714		2693					2665	44600
3.	2743		2755		2705		2709	44500		2660	45000
4.			2720		2742				—	2588	41300 -
5.	2751		2728		2729		2714	46600 /		2649	43700
6.			2729		2696					2658	43400
7.	2748		2703 -		2710		2698	43700 -		2641	42800
8.			2756 /		2708					2636	43600
9.	2739		2716		2695		2717	44700		2675	44900
10.			2717		2733					2667	44000
11.	2747		2740		2713		2705	44300		2658	44200
12.			2709		2706					2649	44200
13.	2753		2721		2761 /		2709	45400		2645	44100
14.			2740		2695					2661	45300
15.	2750		2723		2713		2698	46000		2651	43600
16.			2712		2742					2661	43600
17.	2768 /		2722		2741		2716	46600		2634	42900
18.			2735		2745					2673	45000
19.	2745		2736		2753		2692	44700		2680	44200
20.			2723		2709					2681	46400 /
	27480	Total	54510		54380		27076	452200	Total	53122	881400
	2748	Mean	2726		2719		2708	45200	Mean	2656	44100
		Vel.C	± 0		± 0				Pr.Cor.		/200
		C.Vel	2726		2719				Cor Pr.		44300
	32	Ex.Var.	53		70		26	2900	Ex.Var.	102	5100
		S.D.	14								

REMARKS:

Rds. alternated

Range #3

Dhronograph #5

W - D = - 7 FIS

CHRONOGRAPH OR Kirk | W.O. 51702-02-11

CASES & PRIMERS OK | GUNNER McGuinn | 3-2-6-9

DATE FIRED 8/23/56 | FOREMAN | CHIEF BALLISTICIAN John P. Wurst

ORDBA FORM SP 931 REV MAR 51

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, N.J.-88-224

Powder: WC 846

Charge: 45.8

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 5
CALIBER 7.62mm
BULLET
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-161E2			Hot T-52		Cold T-52	
NO. OF GUN		5			4		4	
ROUNDS IN GUN		10385			700		1000	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		7793			700		1000	
HEAD SPACE		-			-		-	
PIN PROTRUSION		-			-		-	
ROUNDS FIRED		308			300		300	
RDS. IN BURST OR CLIPS		100-8			100		100	
NO. OF BURSTS OR CLIPS		3-1			3		3	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS		13			169		4	
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION							*	

REMARKS: Bad Profile

* 1 Gas Eroded head with 1 S-J-K-L Case Split

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 9 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NKPC), METUCHEN, NJ-38-387

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R&DP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 5

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-52			Hot T-52		Cold T-161E2	
NO. OF GUN		4			4		5	
ROUNDS IN GUN		200			400		10185	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		200			400		7485	
HEAD SPACE		-			-		-	
PIN PROTRUSION		-			-		-	
ROUNDS FIRED		200			200		200	
RDS. IN BURST OR CLIPS		100			100		100	
NO. OF BURSTS OR CLIPS		2			2		2	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

PRIMER LEAKS					133		17	
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
~~RUPTURE~~ Gas Eroded Head					1			
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK						

REMARKS: Good Work

GM CAL. .30, B. M1917A1 — R.U.S. CAL. .30 M1903A3 — GM CAL. .50 M3 AC

GM CAL. .30, B. A. C. — PISTOL AUTO CAL. .45 M1911A1 — GM CAL. .60 T17E5

GM CAL. .30, B. M1919A4 — GSM CAL. .45 M3-M3A1 — GM CAL. .60 T59

GM CAL. .30, B. M1919A6 — GM CAL. .22 M3-M4 — GA CAL. .60/20 MK 12

R.A. CAL. .30, B. M1918A2 — GM CAL. .50, B. M2 AC — GA 20 MM M3

R.U.S. CAL. .30 M1 — GM CAL. .50, B. M2 HB — GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 9 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, N.J.-50-307

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R&D P 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 5

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-48			Hot T-48		Cold T-48	
NO. OF GUN		4197			4197		4197	
ROUNDS IN GUN		6119			6319		6519	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		6119			6319		6519	
HEAD ~~SPACE~~ Br.		2.183"			2.183"		2.183"	
PIN PROTRUSION		.063"			.063"		.063"	
ROUNDS FIRED		200			200		200	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		10			10		10	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																		
ZERO (MS)																		

DEFECTS

PRIMER LEAKS					65		3	
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK						

REMARKS: Bad Profile Cases

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918 A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 9 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NAPCO), METUCHEN, NJ-56-367-

Powder: WC 846 Charge: 45.8 grs Primer: Rem #39	**FRANKFORD ARSENAL PROOF HOUSE** **FUNCTION AND CASUALTY TEST** R&D P No. 7-56 **AUTOMATIC & SEMI-AUTOMATIC WEAPONS**	PRIMER LOT AMM'N. LOT 5 CALIBER 7.62mm BULLET CARTRIDGE Aluminum MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal			Hot		Cold	
		T-44			T-44		T-44	
NO. OF GUN		1355			1355		1355	
ROUNDS IN GUN		5280			5480		5680	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		5280			5480		5680	
HEAD SPACE		2.186"			2.186"		2.186"	
PIN PROTRUSION		.048"			.048"		.048"	
ROUNDS FIRED		200			200		200	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		10			10		10	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS					82			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK					OK	

REMARKS: Bad Profile Cases

GM CAL. .30, B. M1917A1	R.U.S. CAL. .30 M1903A3	GM CAL. .50 M3 AC
GM CAL. .30, B. A. C.	PISTOL AUTO CAL. .45 M1911A1	GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4	GSM CAL. .45 M3-M3A1	GM CAL. .60 T39
GM CAL. .30, B. M1919A6	GM CAL. .22 M3-M4	GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2	GM CAL. .50, B. M2 AC	GA 20 MM M3
R.U.S CAL. .30 M1	GM CAL. .50, B. M2 HB	GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 9 May 57

FOREMAN _____ CHIEF BALLISTICIAN _____

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-56-3871

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R&D P No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 5

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal Hangfire			Hot Hangfire		Cold Hangfire	
NO. OF GUN		793759			793759		793759	
ROUNDS IN GUN		15110			15510		15310	
NO. OF BARREL		B-4			B-4		B-4	
ROUNDS IN BARREL		500			900		700	
HEAD ~~SPACE~~ Br.		2.184"			2.184"		2.184"	
PIN PROTRUSION		.061"			.061"		.061"	
ROUNDS FIRED		200			200		200	
RDS. IN BURST OR CLIPS		50			50		50	
NO. OF BURSTS OR CLIPS		4			4		4	
GUNNER		Reynolds			Reynolds		Reynolds	

GUN FUNCTION

GROUP (MS)	.4	.5	.5	.5			.4	.4	1.0	.4			.4	.3	.4	.4
ZERO (MS)	10.9						10.9						10.9			

DEFECTS

Primer Leaks-Small		6			34		1	
PRIMER LEAKS-Large		1			69			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
~~PRIMER~~ Blown Primer					8			
~~BREECH~~ Gas Eroded Heads					16			
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Bad Profile Cases

GM CAL. .30, B. M1917A1 — R.U.S. CAL. .30 M1903A3 — GM CAL. .50 M3 AC

GM CAL. .30, B. A. C. — PISTOL AUTO CAL. .45 M1911A1 — GM CAL. .60 T17E5

GM CAL. .30, B. M1919A4 — GSM CAL. .45 M3-M3A1 — GM CAL. .60 T59

GM CAL. .30, B. M1919A6 — GM CAL. .22 M3-M4 — GA CAL. .60/20 MK 12

R.A. CAL. .30, B. M1918A2 — GM CAL. .50, B. M2 AC — GA 20 MM M3

R.U.S. CAL. .30 M1 — GM CAL. .50, B. M2 HB — GA 20 MM M24A1

RECORDER Pantano - Seixas W.O. 51702-02-11 DATE FIRED 9 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-56-367

Powder: WC 846

Charge: 45.5 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
RDP No. 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 6
CALIBER 7.62mm
BULLET
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-161			Hot T-161	Cold T-161		Normal T-161
NO. OF GUN		5			5	5		5
ROUNDS IN GUN		17385			16985	16385		17510
NO. OF BARREL		2			2	2		2
ROUNDS IN BARREL		9393			8993	8393		9518
HEAD ~~STRIKE~~ Br.		-			-	-		-
PIN PROTRUSION		-			-			-
ROUNDS FIRED		400			600	600		125
RDS. IN BURST OR CLIPS		100			100	100		100-25
NO. OF BURSTS OR CLIPS		4			6	6		1-1
GUNNER		Robinson			Robinson	Robinson		Robinson

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

Blown Primer					3			
PRIMER LEAKS		2			120	10		1
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS						J-K-L,S-J-K-L		
RUPTURE		25(K)			16			
~~STRETCHED~~ Gas Eroded	Head					2		
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Good Work — Bad Profile

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas — W.O. 51702-02-11 DATE FIRED 16 May 57

FOREMAN — CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-887

Powder: WC 846

Charge: 45.5 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
RDP No. 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 6
CALIBER 7.62mm
BULLET
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

		Normal			Hot			Cold		
TYPE OF GUN	HANGFIRE	T-44			T-44			T-44		
NO. OF GUN		1355			1355			1355		
ROUNDS IN GUN		6280			6080			5880		
NO. OF BARREL		1			1			1		
ROUNDS IN BARREL		6280			6080			5880		
HEAD ~~STRIKE~~ Br.		2.186"			2.186"			2.186"		
PIN PROTRUSION		.048"			.048"			.048"		
ROUNDS FIRED		200			200			200		
RDS. IN BURST OR CLIPS		20			20			20		
NO. OF BURSTS OR CLIPS		10			10			10		
GUNNER		Robinson			Robinson			Robinson		

GUN FUNCTION

GROUP (MS)																		
ZERO (MS)																		

DEFECTS

Gas Eroded Head		1			1			1		
PRIMER LEAKS		1			34					
PRIMER PERFORATIONS										
LOOSE PRIMERS										
CASE SPLITS										
RUPTURE										
STRETCHES										
GAS FLASHES										
BREECH FLAMES										
BREECH SPARKS										
AMM. FUNCTION										

REMARKS: Bad Profile

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 8 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-387

Powder:	WC 846
Charge:	45.5 grs.
Primer:	Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
RDP No. 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT	
AMM'N. LOT	6
CALIBER	7.62 mm
BULLET	
CARTRIDGE	Aluminum
MFG.	F.A.

GUN DATA

		Normal			Hot		Cold	
TYPE OF GUN	HANGFIRE	T-48			T-48		T-48	
NO. OF GUN		4197			4197		4197	
ROUNDS IN GUN		6819			6719		7119	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		6819			6719		7119	
HEAD SPACE		2.183"			2.183"		2.183"	
PIN PROTRUSION		.063"			.063"		.063"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

PRIMER LEAKS					5			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK					OK	

REMARKS: Good Work

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 8 May 57

FOREMAN ______ CHIEF BALLISTICIAN ______

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NJPC), METUCHEN, NJ-56-967

Powder: WC 846

Charge: 45.5 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 6

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-48			Hot T-48		Cold T-48	
NO. OF GUN		4197			4197		4197	
ROUNDS IN GUN		6919			6619		7019	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		6919			6619		7019	
HEAD ~~SPACE~~ Br.		2.183"			2.183"		2.183"	
PIN PROTRUSION		.063"			.063"		.063"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS					3			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK					OK	

REMARKS: Bad Profile

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T39
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 8 May 57

FOREMAN CHIEF BALLISTICIAN

Powder: WC 846	FRANKFORD ARSENAL PROOF HOUSE	PRIMER LOT
Charge: 45.5 grs	FUNCTION AND CASUALTY TEST	AMM'N. LOT 6
Primer: Rem #39	RDP# 7-56	CALIBER 7.62mm
T-65 Gun	AUTOMATIC & SEMI-AUTOMATIC WEAPONS	BULLET
		CARTRIDGE Aluminum
		MFG. F.A.

GUN DATA

	Normal				Hot		Cold	
TYPE OF GUN	HANGFIRE				Hangfire		Hangfire	
NO. OF GUN	793756				793756		793756	
ROUNDS IN GUN	16610				16810		17010	
NO. OF BARREL	B-4				B-4		B-6	
ROUNDS IN BARREL	1700				1900		200	
HEAD ~~STAKE~~ Br.	2.184"				2.184"		2.186"	
PIN PROTRUSION	.061"				.061"		.061"	
ROUNDS FIRED	200				200		200	
RDS. IN BURST OR CLIPS	50				50		50	
NO. OF BURSTS OR CLIPS	4				4		4	
GUNNER	Pantano				Pantano		Pantano	

GUN FUNCTION

GROUP (MS)	.4	.4	.3	.3			.4	.4	.4	.4			.3	.4	.3	.4
ZERO (MS)	11.1						11.1						11.1			

DEFECTS

Blown Primer					3			
PRIMER LEAKS					24			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS					8K		1K	
RUPTURE								
~~STRETCHES~~ Gas Eroded	Head 1				8			
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Good Work

Requirements:
Cal .30, Ball M2
Shall not exceed 2.5 milliseconds

GM CAL. .30, B. M1917A1	R.U.S. CAL. .30 M1903A3	GM CAL. .50 M3 AC
GM CAL. .30, B. A. C.	PISTOL AUTO CAL. .45 M1911A1	GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4	GSM CAL. .45 M3-M3A1	GM CAL. .60 T59
GM CAL. .30, B. M1919A6	GM CAL. .22 M3-M4	GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2	GM CAL. .50, B. M2 AC	GA 20 MM M3
R.U.S. CAL. .30 M1	GM CAL. .50, B. M2 HB	GA 20MM M24A1

RECORDER Langer - Seixas W.O. 51702-02-11 DATE FIRED 27 May 57

FOREMAN Asst. CHIEF BALLISTICIAN H. A. Fala

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 7

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. FA

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-161	Normal T-161		Hot T-161	Hot T-52	Cold T-161	Cold T-52
NO. OF GUN		5	5		5	4	5	4
ROUNDS IN GUN		18010	18610		19610	2200	19110	1600
NO. OF BARREL		2	1		1	1	1	1
ROUNDS IN BARREL		6425	6885		7885	2200	7385	1600
HEAD SPACE		-	-		-	-	-	-
PIN PROTRUSION		-	-		-	-	-	-
ROUNDS FIRED		500	600		500	600	500	600
RDS. IN BURST OR CLIPS		100	100		100	100	100	100
NO. OF BURSTS OR CLIPS		5	6		5	6	5	6
GUNNER		Robinson	Robinson		Robinson	Robinson	Robinson	Robinson

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

Gas Eroded Heads 4

PRIMER LEAKS	12	18		160	222	20	21
PRIMER PERFORATIONS					1		
LOOSE PRIMERS							
CASE SPLITS							
RUPTURE	3-J;43-K			22-K	1-K		
~~STRIKERS~~ Blown Primer				3	2		
GAS FLASHES							
BREECH FLAMES							
BREECH SPARKS							
AMM. FUNCTION	*						

REMARKS: Good Work

* Gun No. T161 No. 5 Bar #2 out of service due to eroded chamber

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas

W.O. 51702-02-11 DATE FIRED 21 May 57

FOREMAN

CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-387

Powder: WC 846
Charge: 45.8 grs
Primer: Rem #39
T-6.5

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
RDP No. 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 7
CALIBER 7.62mm
BULLET
CARTRIDGE Aluminum
MFG. FA

GUN DATA

TYPE OF GUN	HANGFIRE	Normal Hangfire			Hot Hangfire		Cold Hangfire	
NO. OF GUN		793756			793756		793756	
ROUNDS IN GUN		17210			17410		17610	
NO. OF BARREL		B-6			B-6		B-7	
ROUNDS IN BARREL		400			600		300	
HEAD ~~ERASE~~ Br.		2.186"			2.186"		2.185"	
PIN PROTRUSION		.065"			.065"		.065"	
ROUNDS FIRED		200			200		200	
RDS. IN BURST OR CLIPS		50			50		50	
NO. OF BURSTS OR CLIPS		4			4		4	
GUNNER		Pantano			Pantano		Pantano	

GUN FUNCTION

GROUP (MS)	.4	.4	.3	.4				.4	.5	.4	.3		.4	.5	.4	.4
ZERO (MS)	11.0							11.0					11.0			

DEFECTS

Eroded Heads					13			
PRIMER LEAKS	5				91		7	
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE					6-K		1-K	
~~SPRUNG~~ Blown Primers					3			
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Good Work

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 MI
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .30, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T175.
GM CAL. .60 T59
GA CAL. 60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Langer - Seixas W.O. 51702-02-11 DATE FIRED 27 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (KNPC), METUCHEN, NJ-50-307)

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 7

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. FA

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-44			Hot T-44		Cold T-44	
NO. OF GUN		1355			1355		1355	
ROUNDS IN GUN		6780			6480		6680	
NO OF BARREL		1			1		1	
ROUNDS IN BARREL		6780			6480		6680	
HEAD SPACE		2.187"			2.187"		2.187"	
PIN PROTRUSION		.051"			.051"		.051"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS					25			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK					OK	

REMARKS: Bad Profile

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 10 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-387

Powder: WC 846
Charge: 45.8
Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
RDP No. 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 7
CALIBER 7.62mm
BULLET
CARTRIDGE Aluminum
MFG. FA

GUN DATA

		Normal			Hot		Cold	
TYPE OF GUN	HANGFIRE	T-48			T-48		T-48	
NO OF GUN		4197			4197		4197	
ROUNDS IN GUN		7519			7219		7319	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		7519			7219		7319	
HEAD SPACE Br.		2.183"			2.183"		2.183"	
PIN PROTRUSION		.061"			.061"		.061"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE					64 JK			
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK					OK	

REMARKS: Bad Profile

GM CAL .30, B M1917A1 | R.U.S. CAL .30 M1903A3 | GM CAL .50 M3 AC
GM CAL. .30, B. A. C. | PISTOL AUTO CAL. .45 M1911A1 | GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4 | GSM CAL .45 M3-M3A1 | GM CAL. .60 T59
GM CAL. .30, B. M1919A6 | GM CAL. .22 M3-M4 | GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2 | GM CAL. .50, B. M2 AC | GA 20 MM M3
R.U.S. CAL .30 M1 | GM CAL .50, B. M2 HB | GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 10 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RAPITAN ARSENAL (NNPC), METUCHEN, NJ-58-387

Powder: WC 846

Charge: 45.8 grs.

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 7

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-44			Hot T-44		Cold T-44	
NO. OF GUN		1355			1355		1355	
ROUNDS IN GUN		6880			6580		6380	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		6880			6580		6380	
HEAD ~~SPACE~~ Br.		2.187"			2.187"		2.187"	
PIN PROTRUSION		.051"			.051"		.051"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)								
ZERO (MS)								

DEFECTS

PRIMER LEAKS					37			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
~~STRETCHES~~ Folds					60			
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK					OK	

REMARKS Long Cartridge.

GM CAL .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL .50 M3 AC
GM CAL. 60 T17E5
GM CAL. .60 T59
GA CAL .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas

W.O. 51702-02-11 DATE FIRED 10 May 57

FOREMAN

CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY RARITAN ARSENAL (NMPC) METUCHEN N.J. SR-587

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
RDP No. 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 7
CALIBER 7.62mm
BULLET
CARTRIDGE Aluminum
MFG. FA

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-48			Hot T-48		Cold T-48	
NO. OF GUN		4197			4197		4197	
ROUNDS IN GUN		7419			7619		7719	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		7419			7619		7719	
HEAD SPACE Br		2.183"			2.183"		2.183"	
PIN PROTRUSION		.061"			.061"		.061"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)								
ZERO (MS)								

DEFECTS

PRIMER LEAKS					12			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK					OK	

REMARKS Lor. Cartridge

GM CAL .30, B M1917A1 | R.U.S. CAL. 30 M1903A3 | GM CAL. .50 M3 AC
GM CAL. .30, B A.C. | PISTOL AUTO CAL. .45 M1911A1 | GM CAL. .60 T17E5
GM CAL. 30, B M1919A4 | GSM CAL .45 M3-M3A1 | GM CAL. .60 T59
GM CAL. .30, B M1919A6 | GM CAL. .22 M3-M4 | GA CAL .60/20 MK 12
R.A. CAL. .30, B M1918A2 | GM CAL. .50, B. M2 AC | GA 20 MM M3
R U S CAL 30 M1 | GM CAL 50, B. M2 HB | GA 20 MM M24A1

RECORDER Deixas W.O. 51702-02-11 DATE FIRED 10 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (RMPCI, METUCHEN, NJ 58-387)

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
RDP No. 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 8
CALIBER 7.62mm
BULLET
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

		Normal			Hot		Cold	
TYPE OF GUN	HANGFIRE	T-44			T-44		T-44	
NO. OF GUN		1355			1355		1355	
ROUNDS IN GUN		7281			7481		7680	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		7281			7481		7680	
HEAD [redacted] Br.		2.187"			2.187"		2.187"	
PIN PROTRUSION		.051"			.051"		.051"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS		1			56			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE					1-J			
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION							OK	

REMARKS: Long Length

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 22 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-587

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 8

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

		Normal			Hot			Cold		
TYPE OF GUN	HANGFIRE	T-48			T-48			T-48		
NO. OF GUN		4124			4124			4124		
ROUNDS IN GUN		7370			7470			7670		
NO. OF BARREL		1			1			1		
ROUNDS IN BARREL		7370			7470			7670		
HEAD ~~SPACE~~ Br.		2.186"			2.186"			2.186"		
PIN PROTRUSION		.053"			.053"			.053"		
ROUNDS FIRED		100			100			100		
RDS. IN BURST OR CLIPS		20			20			20		
NO. OF BURSTS OR CLIPS		5			5			5		
GUNNER		Robinson			Robinson			Robinson		

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

PRIMER LEAKS					47				
PRIMER PERFORATIONS									
LOOSE PRIMERS									
CASE SPLITS									
RUPTURE					2-J				
STRETCHES									
GAS FLASHES									
BREECH FLAMES									
BREECH SPARKS									
AMM. FUNCTION	OK							OK	

REMARKS: Long Length

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .30, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T1TE3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 22 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NNPC), METUCHEN, NJ-56-987

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 8

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-44			Hot T-44		Cold T-44	
NO. OF GUN		1355			1355		1355	
ROUNDS IN GUN		7381			7581		7780	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		7381			7581		7780	
HEAD ~~SPACE~~ Br.		2.187"			2.187"		2.187"	
PIN PROTRUSION		.051			.051"		.051"	
ROUNDS FIRED		100			100		100	
RDS. IN BURST OR CLIPS		20			20		20	
NO. OF BURSTS OR CLIPS		5			5		5	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS		1			68			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE							1-K	
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Bad Profile

GM CAL. .30, B. M1917A1	R.U.S. CAL. .30 M1903A3	GM CAL. .50 M3 AC
GM CAL. .30, B. A. C.	PISTOL AUTO CAL. .45 M1911A1	GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4	GSM CAL. .45 M3-M3A1	GM CAL. .60 T59
GM CAL. .30, B. M1919A6	GM CAL. .22 M3-M4	GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2	GM CAL. .50, B. M2 AC	GA 20 MM M3
R.U.S. CAL. .30 M1	GM CAL. .50, B. M2 HB	GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 22 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-387

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

RDP No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 8

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-48	Normal T-48		Hot T-48		Cold T-48	
NO. OF GUN		4197	4124		4124		4124	
ROUNDS IN GUN		8059	7220		7570		7770	
NO. OF BARREL		1	1		1		1	
ROUNDS IN BARREL		8059	7220		7570		7770	
HEAD ~~SPACE~~ Br.		2.183"	2.186"		2.186"		2.186"	
PIN PROTRUSION		.061	.053		.053"		.053"	
ROUNDS FIRED		40	60		100		100	
RDS. IN BURST OR CLIPS		20	20		20		20	
NO. OF BURSTS OR CLIPS		2	3		5		5	
GUNNER		Robinson	Robinson		Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS					47			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE		1-K						
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		*					OK	

REMARKS: Bad Profile

* Gun T-48 No. 4197 Test discontinued - Eroded chamber due to burn thru in case.

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 23 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM 5P-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NNPC), METUCHEN, NJ-56-307

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R.D.P. No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 8

CALIBER 7.62mm

BULLET

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	Normal HANGFIRE				Hot Hangfire		Cold Hangfire	
NO. OF GUN	793756				793756		793756	
ROUNDS IN GUN	17810				18010		18210	
NO. OF BARREL	B-7				B-7		B-7	
ROUNDS IN BARREL	500				700		900	
HEAD ~~SPACE~~ Br.	2.185"				2.185"		2.185"	
PIN PROTRUSION	.065"				.065"		.065"	
ROUNDS FIRED	200				200		200	
RDS. IN BURST OR CLIPS	50				50		50	
NO. OF BURSTS OR CLIPS	4				4		4	
GUNNER	Pantow				Pantow		Pantow	

GUN FUNCTION

GROUP (MS)	.4	.3	.4	.5				.3	.4	.4	.5		.3	.5	.5	.5		
ZERO (MS)	11.3							11.3					11.3					

DEFECTS

Eroded Heads					27			
PRIMER LEAKS	11				117			
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS							1-J	
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Good Work

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T39
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Langer-Seixas W.O. 51702-02-11 DATE FIRED 20 May 57

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 875 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, N.J.-58-387

Powder:	WC 846
Charge:	45.8
Primer:	Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R.D.P. No. 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT ______
AMM'N. LOT 8
CALIBER 7.62mm
BULLET ______
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	Normal T-52			Hot T-52		Cold T-52	
NO. OF GUN		4			4		4	
ROUNDS IN GUN		2428			3028		2728	
NO. OF BARREL		1			1		1	
ROUNDS IN BARREL		2428			3028		2728	
HEAD SPACE Br.		-			-		-	
PIN PROTRUSION		-			-		-	
ROUNDS FIRED		228			300		300	
RDS. IN BURST OR CLIPS		100-28			100		100	
NO. OF BURSTS OR CLIPS		2-1			3		3	
GUNNER		Robinson			Robinson		Robinson	

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

PRIMER LEAKS		26			198		42	
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE		1-K						
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Good Work

GM CAL. .30, B. M1917A1	R.U.S. CAL. .30 M1903A3	GM CAL. .50 M3 AC
GM CAL. .30, B. A. C.	PISTOL AUTO CAL. .45 M1911A1	GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4	GSM CAL. .45 M3-M3A1	GM CAL. .60 T59
GM CAL. .30, B. M1919A6	GM CAL. .22 M3-M4	GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2	GM CAL. .50, B. M2 AC	GA 20 MM M3
R U.S. CAL. .30 M1	GM CAL. .50, B. M2 HB	GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 24 May 57

FOREMAN ______ CHIEF BALLISTICIAN ______

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (NR*C), METUCHEN, NJ-58-867

Powder: WC 846

Charge: 45.8

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 11-A-1
CALIBER 7.62 mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-44					
NO. OF GUN			1191					
ROUNDS IN GUN			3460					
NO. OF BARREL			1					
ROUNDS IN BARREL			3460					
~~XCXX~~ SPACE B.S.			2.186"					
PIN PROTRUSION			.055"					
ROUNDS FIRED			25					
RDS. IN BURST OR CLIPS			20 - 5					
NO. OF BURSTS OR CLIPS			1 - 1					
GUNNER			Robinson					

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS			3					
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES			numerous					
BREECH SPARKS			numerous					
AMM. FUNCTION			*					

REMARKS: Hot Firing:

* 11 stoppages: 11 blown primers with gas eroded heads

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK i2
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58

FOREMAN _____ CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL(RAPDI-METUCHEN,NJ-52-1795

Powder: IMR 4475
Lot: 54
Charge: 39.5
Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 11-A-2
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-44					
NO. OF GUN			1491					
ROUNDS IN GUN			3505					
NO. OF BARREL			1					
ROUNDS IN BARREL			3505					
~~BOLT~~ SPACE B.S.			2.186"					
PIN PROTRUSION			.055"					
ROUNDS FIRED			25					
RDS. IN BURST OR CLIPS			20 - 5					
NO. OF BURSTS OR CLIPS			1 - 1					
GUNNER			Robinson					

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

PRIMER LEAKS			6					
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES			numerous					
BREECH SPARKS			numerous					
AMM. FUNCTION			*					

REMARKS: Hot Firing:

* 6 stoppages: 4 stoppages - blown primers with gas eroded heads

1 stoppage - loose primer (permissible) with blow back of metal also a complete rim shear

1 stoppage - Primer leak with a complete rim shear

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .30, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas
W.O. 83805-10-01 DATE FIRED 18 Mar 58
FOREMAN
CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)
ARMY-RARITAN ARSENAL/RAPOI, METUCHEN, NJ-52-1795

Powder: WC 846
Charge: 45.8
Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 12-A-1
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-52					
NO. OF GUN			10					
ROUNDS IN GUN			1093					
NO. OF BARREL			2					
POUNDS IN BARREL			1093					
HEAD SPACE			--					
PIN PROTRUSION			--					
ROUNDS FIRED			50					
RDS. IN BURST OR CLIPS			50					
NO. OF BURSTS OR CLIPS			1					
GUNNER			Robinson					

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

Primer leaks (gas eroded heads)			10					
PRIMER LEAKS			28					
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES			numerous					
BREECH SPARKS			numerous					
AMM. FUNCTION			*					

REMARKS: Hot Firing:

* 2 stoppages: 1 loose primer (permissible) with blow back of metal and gas eroded head

1 blown primer with gas eroded head

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20MM M24A1

RECORDER Seixas
W.O. 83805-10-01 DATE FIRED 18 Mar 58
FOREMAN
CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)
ARMY-RARITAN ARSENAL(RAPD), METUCHEN, N.J.

Powder: WC 846
Charge: 45.8
Primer: Rem#39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 12-A-1
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-44					
NO. OF GUN			1491					
ROUNDS IN GUN			3040					
NO. OF BARREL			1					
ROUNDS IN BARREL			3040					
HEAD SPACE			2.186"					
PIN PROTRUSION			.055"					
ROUNDS FIRED			60					
RDS. IN BURST OR CLIPS			20					
NO. OF BURSTS OR CLIPS			3					
GUNNER			Robinson					

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

Primer leaks (gas eroded heads) 4

PRIMER LEAKS			24					
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES			numerous					
BREECH SPARKS			numerous					
AMM. FUNCTION			*					

REMARKS: Hot Firing:

* 10 stoppages: 3 stoppages - primer leaks with gas eroded head and complete rim shears
1 stoppage - loose primer (permissible) with blow back of metal and gas eroded heads
2 stoppages - blown primers with gas eroded heads and partial rim shear
1 stoppage - blown primer with gas eroded head and complete rim shear
3 stoppages - blown primers with gas eroded heads

GM CAL. .30, B. M1917A1 | R.U.S. CAL. .30 M1903A3 | GM CAL. .50 M3 AC
GM CAL. .30, B. A. C. | PISTOL AUTO CAL. .45 M1911A1 | GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4 | GSM CAL. .45 M3-M3A1 | GM CAL. .60 T59
GM CAL. .30, B. M1919A6 | GM CAL. .22 M3-M4 | GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2 | GM CAL. .50, B. M2 AC | GA 20 MM M3
R.U.S. CAL. .30 M1 | GM CAL. .50, B. M2 HB | GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58

FOREMAN _____ CHIEF BALLISTICIAN John P. Werst

Powder: HES 5232.99
Charge: 39.5
Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 12-A-2
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE		T-44			T-52		
NO. OF GUN			1491			10		
ROUNDS IN GUN			3110			1125		
NO. OF BARREL			1			2		
ROUNDS IN BARREL			3110			1125		
HEAD SPACE			2.186"			--		
PIN PROTRUSION			.055"			--		
ROUNDS FIRED			60			32		
RDS. IN BURST OR CLIPS			20			32		
NO. OF BURSTS OR CLIPS			3			1		
GUNNER			Robinson			Robinson		

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

Primer leaks(gas eroded heads) 9

PRIMER LEAKS			12			15		
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES			numerous			numerous		
BREECH SPARKS			numerous			numerous		
AMM. FUNCTION						*		

REMARKS: Hot Firing:

* 1 stoppage: blown primer with gas eroded head

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58

FOREMAN _____ CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL/RAPDI, METUCHEN, N.J. 52-1705

Powder: WC 846
Charge: 45.8
Primer: Rem#39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 12-B-1
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	T-44				T-52		
NO. OF GUN		1191				10		
ROUNDS IN GUN		3170				1160		
NO. OF BARREL		1				2		
ROUNDS IN BARREL		3170				1160		
~~BREECH~~ SPACE B.S.		2.186"				--		
PIN PROTRUSION		.055"				--		
ROUNDS FIRED		60				35		
RDS. IN BURST OR CLIPS		20				35		
NO. OF BURSTS OR CLIPS		3				1		
GUNNER		Robinson				Robinson		

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

Primer leak (gas eroded head)		3						
PRIMER LEAKS		25				26		
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
~~PRIMER~~ blown primer (gas eroded head)						2		
STRETCHES								
GAS FLASHES								
BREECH FLAMES		numerous				numerous		
BREECH SPARKS		numerous				numerous		
AMM. FUNCTION		*				*		

REMARKS: Hot Firing:

* 4 stoppages - 3 loose primers (permissible) with blow back of metal & gas eroded heads
1 blown primer with gas eroded head

** 2 stoppages - 2 blown primers

GM CAL. .30, B. M1917A1	R.U.S. CAL. .30 M1903A3	GM CAL. .50 M3 AC
GM CAL. .30, B. A. C.	PISTOL AUTO CAL. .45 M1911A1	GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4	GSM CAL. .45 M3-M3A1	GM CAL. .60 T59
GM CAL. .30, B. M1919A6	GM CAL. .22 M3-M4	GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2	GM CAL. .50, B. M2 AC	GA 20 MM M3
R.U.S. CAL. .30 M1	GM CAL. .50, B. M2 HB	GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58

FOREMAN _____ CHIEF BALLISTICIAN John P. Werst

Powder:	PRIMER LOT
HES 5232.99	AMM'N. LOT 12-B-2
Charge: 39.5 grs	CALIBER 7.62mm
Primer: Rem #39	BULLET Ball
	CARTRIDGE Aluminum
	MFG. F.A.

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

GUN DATA

TYPE OF GUN	HANGFIRE	T-44				T-52		
NO. OF GUN		1491				10		
ROUNDS IN GUN		3230				1207		
NO. OF BARREL		1				2		
ROUNDS IN BARREL		3230				1207		
xHEAD SPACE B.S.		2.186"				--		
PIN PROTRUSION		.055"				--		
ROUNDS FIRED		60				47		
RDS. IN BURST OR CLIPS		20				47		
NO. OF BURSTS OR CLIPS		3				1		
GUNNER		Robinson				Robinson		

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS						19		
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES						numerous		
BREECH SPARKS								
AMM. FUNCTION		OK						

REMARKS: Hot Firing:

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 2C MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58

FOREMAN ____ CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL(RAPUI.METUCHEN.NJ-52-1795

Powder: WC 846
Charge: 45.8 grs
Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 12-B-3
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	T-44				T-52		
NO. OF GUN		1491				10		
ROUNDS IN GUN		3290				1247		
NO. OF BARREL		1				2		
ROUNDS IN BARREL		3290				1247		
~~HEAD~~ SPACE B.S.		2.186"				--		
PIN PROTRUSION		.055"				--		
ROUNDS FIRED		60				40		
RDS. IN BURST OR CLIPS		20				40		
NO. OF BURSTS OR CLIPS		3				1		
GUNNER		Robinson				Robinson		

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

Primer leaks (gas eroded head) 10

PRIMER LEAKS		49				32		
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES		numerous				numerous		
BREECH SPARKS		numerous				numerous		
AMM. FUNCTION		*				* *		

REMARKS: Hot Firing:

* 1 stoppage: loose primer (permissible) with blow back of metal

** 8 stoppages: blown primers

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58

FOREMAN CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL RAPID, METUCHEN, N.J. 52-1795

Powder: WC 846
Charge: 45.8 grs
Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 12-C-1
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F. A.

GUN DATA

TYPE OF GUN	HANGFIRE	T-44				T-52		
NO. OF GUN		1491				10		
ROUNDS IN GUN		3350				1267		
NO. OF BARREL		1				2		
ROUNDS IN BARREL		3350				1267		
~~HEADX~~SPACE B.S.		2.186"				--		
PIN PROTRUSION		.055"				--		
ROUNDS FIRED		60				20		
RDS. IN BURST OR CLIPS		20				20		
NO. OF BURSTS OR CLIPS		3				1		
GUNNER		Robinson				Robinson		

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS		39				11		
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES		numerous				numerous		
BREECH SPARKS		numerous				numerous		
AMM. FUNCTION		*				**		

REMARKS: Hot Firing:
* 7 stoppages: 2 loose primer (permissible) with blow back of metal & K ruptures
4 primer leaks with complete rim shears
1 blown primer with gas eroded head
** 2 stoppages: 1 blown primer with gas eroded head
1 blown primer with a complete rim shear and gas eroded head

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .30 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58
FOREMAN CHIEF BALLISTICIAN John P. Werst

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)
ARMY-RARITAN ARSENAL/RAPDI, METUCHEN, NJ-52-1795

Powder: HES 5232.92 Charge: 39.0 grs Primer: Rem #39	FRANKFORD ARSENAL PROOF HOUSE FUNCTION AND CASUALTY TEST AUTOMATIC & SEMI-AUTOMATIC WEAPONS	PRIMER LOT AMM'N. LOT 12-C-2 CALIBER 7.62mm BULLET Ball CARTRIDGE Aluminum MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	T-44				T-52		
NO. OF GUN		1491				10		
ROUNDS IN GUN		3410				1305		
NO. OF BARREL		1				2		
ROUNDS IN BARREL		3410				1305		
~~HEAD~~ SPACE B.S.		2.186"				--		
PIN PROTRUSION		.055"				--		
ROUNDS FIRED		60				38		
RDS. IN BURST OR CLIPS		20				38		
NO OF BURSTS OR CLIPS		3				1		
GUNNER		Robinson				Robinson		

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

Primer leaks(gas eroded heads)						2		
PRIMER LEAKS		5				13		
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES						Numerous		
BREECH SPARKS						Numerous		
AMM. FUNCTION						*		

REMARKS: Hot Firing:

* 2 stoppages: 1 blown primer with gas eroded head
1 loose primer (permissible) with blow back of metal and a gas eroded head.

GM CAL. .30, B. M1917A1 | R.U.S. CAL. .30 M1903A3 | GM CAL. .50 M3 AC
GM CAL. .30, B. A. C. | PISTOL AUTO CAL. .45 M1911A1 | GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4 | GSM CAL .45 M3-M3A1 | GM CAL. .60 T59
GM CAL. .30, B. M1919A6 | GM CAL. .22 M3-M4 | GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2 | GM CAL. .30, B. M2 AC | GA 20 MM M3
R U S. CAL. .30 M1 | GM CAL. .50, B. M2 HB | GA 20MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 18 Mar 58

FOREMAN _____ CHIEF BALLISTICIAN John P. Werst

POWDER HES5232-99 | **FRANKFORD ARSENAL PROOF TESTING SECTION** | AMM. LOT 12A, B, C.

ARMY LOT | VELOCITY & PRESSURE REPORT | CALIBER 7.62mm

CHARGE 39.3 | BULLET Ball M59

CASE Aluminum | OBJECT: Verify Test R & DP 7-56

PRIMER Rem #39 | SPEC: | REF RDS. 8-55

CTG. AP Cal 30, M61

REC. NO.	BRL. NO.	TRFD.	A.L. 40633 CHG. 45.6
REC. NO. F/A Universal #28	BRL. NO. R57	TRFD. 1220	C-445, B-446, Pwd "S"
REC. NO.	BRL. NO. R64	TRFD. 85	V.V. 2748 F/S (2700 SP)
REC. NO.	BRL. NO. G78	TRFD. 1805	P. V. 45400 psi

	R57				R64				G78			
	Ref		Lot		Ref		Lot			Ref		
1.	2744		2800	≠	2745		2757			2662	42100	-
2.	2735	-	2779		2720	-	2809	≠	-	2649	42400	
3.	2739		2770		2753		2746	-		2661	43600	
4.	2764	≠	2787		2758		2797		≠	2677	44400	≠
5.	2743		2773		2762	≠	2804			2660	42100	
6.	2748		2762		2756		2804		Total	13309	214600	
7.	2741		2770		2744		2798		Mean	2662	42900	
8.	2762		2750	-	2758		2747		Exv	28	2300	
9.	2760		2753		2746		2752					
10.	2742		2775		2748		2771			Lot		
11.									-*	2658	43900	
12.	27478	Total	27719		27490		27785		*	2671	41100	-
13.	2748	Mean	2772		2749		2779		*	2668	41900	
14.		Cor	≠0			-	-1		≠*	2687	46600	≠
15.		Cor'd	2772				2778		*	2672	41700	
16.	29	Exv	50		42		63					
17.		SB	14				25		Total	13356	221200	
18.									Mean	2671	44200	
19.									Cor	≠38	≠2500	
20.									Cor'd	2709	46700	
									Exv	29	5500	

REMARKS:

Rds not alternated

Range No. 10
Counter No. 4
Muzzle #88
Terminal #63

* Loose primers - possibly attributable to scotch tape

CASES & PRIMERS

DATE FIRED 2/21/58

CHRONOGRAPH OP Holden

GUNNER Matelki

FOREMAN H.A. Fale

W.O. 51702-02-10

CHIEF BALLISTICIAN

ORDBA FORM SP 931 REV MAR 51

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-224

POWDER HES 5232-99 | **FRANKFORD ARSENAL PROOF TESTING SECTION** | AMM. LOT 12A, B, C

ARMY LOT

VELOCITY & PRESSURE REPORT

CALIBER 7.62mm

CHARGE 39.3 | OBJECT: Establish Charge R & DP-7-56 | BULLET Ball M59

CASE Aluminum

PRIMER Rem #39 | SPEC: | REF. RDS. 8-55

CTG. AP M61

REC. NO. | BRL. NO. | TRFD. | A.L. 40633 CHG. 45.6

REC. NO. F/A Universal #29 | BRL. NO. R57 | TRFD. 1195 | C-445, B-446 Pwd

REC. NO. | BRL. NO. G74 | TRFD. 1258 | V.V. 2748 F/S (2700 SP)

REC. NO. | BRL. NO. | TRFD. | P.V. 45400 psi

	39.3 grs								Drilled				
	Ref		Lot			Ref			Lot				
1.	2729		2729			2684	43800		2612	40600			
2.	2732	≠	2698			2687	45100	≠ -	2589	38000	-		
3.	2707	-	2730			2685	42800		2599	40000			
4.	2712		2737		-	2670	42800	-*	2644	45000	≠		
5.	2709		2731		≠	2690	44200	≠	2665	44700			
6.			2675	-									
7.			2744			13416	218700	Total	13109	208300			
8.			2737			2683	43700	Mean	2622	41700			
9.			2732					Cor	≠17	≠1700			
10.			2750	≠				Cor'd	2639	43400			
11.						20	2300	Exv	76	7000			
12.	13589	Total	27263										
13.	2718	Mean	2726										
14.		Cor	≠30										
15.		Cor'd	2756										
16.	25	Exv	75										
17.		SD	21										
18.													
19.													
20.													

REMARKS: * Loose primers

Ref Rds not alternated

Range No. 1

Counter No. 4

CASES & PRIMERS

CHRONOGRAPH OR Holden

W.O. 73808-02-14

GUNNER Matecki

DATE FIRED 2/19/58

FOREMAN H. A. Fala

CHIEF BALLISTICIAN

ORDBA FORM SP 931 REV MAR 51

ARMY-RARITAN ARSENAL (RNPC), METUCHEN, NJ-58-224

Powder: WC 846

Charge: 45.8

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT
CALIBER 7.62mm
BULLET Ball, M59
CARTRIDGE Aluminum
MFG.

GUN DATA

LOT		13A4	13B3		13B4	13B7	13B8	13C2
TYPE OF GUN	HANGFIRE	T-65	T-65		T-65	T-65	T-65	T-65
NO. OF GUN		472701	472701		472701	472701	472701	472701
ROUNDS IN GUN		10539	10437		10627	10876	10774	10686
NO. OF BARREL		B-5	B-5		B-5	B-5	B-5	B-5
ROUNDS IN BARREL		5439	5337		5527	5776	5674	5586
HEAD SPACE		2.188"	2.183"		2.188"	2.182"	2.188"	2.188"
PIN PROTRUSION		.064"	.064"		.064"	.064"	.064"	.064"
ROUNDS FIRED		102	87		88	102	88	59
RDS. IN BURST OR CLIPS		102	87		88	102	88	59
NO. OF BURSTS OR CLIPS		1	1		1	1	1	1
GUNNER		REYNOLDS	REYNOLDS		REYNOLDS	REYNOLDS	REYNOLDS	REYNOLDS

GUN FUNCTION

GROUP (MS)															
ZERO (MS)															

DEFECTS

Gas Eroded Head		3	15		10	9	8	17
PRIMER LEAKS		41(L) 26-S	12-L 10-S		8-L 5-S	5-L 10-S	5-L 8-S	4-L 7-S
PRIMER PERFORATIONS								
~~LOOSE~~ PRIMERS Blown	(Non-Permissible)		2 (Non-Permissible)			1		3
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		*	**		***		****	*****

REMARKS: Fired +165°

* 2 Stoppages: short recoil
** 13 " " "
*** 7 " " "
****14 " " "
*****9 " " "

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER SETXAS & KING W.O. 51702-02-11 DATE FIRED 2 Jun 58

FOREMAN [signature] CHIEF BALLISTICIAN

ARMY-RARITAN ARSENAL (NMPCI), METUCHEN, NJ 50-387

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

POWDER WC 846 | **FRANKFORD ARSENAL PROOF TESTING SECTION** | AMM. LOT 13 & 14

ARMY LOT | **VELOCITY & PRESSURE REPORT** | CALIBER 7.62mm

CHARGE | | BULLET Ball M59

CASE Aluminum | OBJECT: Verify Charge as per R & D 7-56 |

PRIMER | SPEC: | REF RDS. 7-57

CTG. 7.62mm NATO

REG. NO.	BRL. NO.	TRFD.	A.L. 40633 CHG. 45.7 grs
REG. NO. F/A Universal No. 12	BRL. NO. C-85	TRFD. 520	C-437, B-436 Pwd "E"
REG. NO.	BRL. NO.	TRFD.	V.V. 2748 F/S, 2705 F/S "SPR"
REG. NO.	BRL. NO.	TRFD.	P.V. 45900 psi

	Ref			13-C1			14-A1			14-A2	
1.	2690	44500		-2695	43500-		∠2684	41700∠		-2660	41700-
2.	2680	43300-		2709	44000		2657	42400		2672	44600∠
3. ∠	2720	43900		2720	45100∠		-2643	41500-		2677	44500
4. -	2675	44600∠		2705	43900		2682	42100		2674	43400
5.	2691	43900		∠2726	43600		2678	43400		∠ 2685	42300
6.	13456	220200	Total	13555	220100		13344	214100		13368	216500
7.	2691	44000	Mean	2711	44000		2669	42800		2674	43300
8.			V&P Cor	∠14	∠1900		∠14	∠1900		∠14	∠1900
9.			Cor'd	2725	45900		2683	44700		2688	45200
10.	45	1300	Ex Var	31	1600		41	3200		25	2900
11.											
12.											
13.							WTS				
14.					13-C-1		14-A-1		14-A-2		
15.					46.16-		45.76		45.78		
16.					46.25∠		45.76		45.82		
17.					46.22		45.76		45.84∠		
18.					46.23		45.84∠		45.77-		
19.					46.22		45.75-		45.82		
20.					231.08	Total	228.87		229.03		
					46.22	Mean	45.77		45.81		
					.09	Ex Var	.09		.07		

REMARKS:

	Primer	Charge	
Lot 13-C-1	Rem 72	46.2 grs	Chrono No. 1
Lot 14-A-1	Rem 39	45.8 grs reg size vents	Range No. 9
Lot 14-A-2	Rem 39	45.8 grs large size vents	

CASES & PRIMERS OK | CHRONOGRAPH OR Allen | W.O. 83805-10-01

DATE FIRED 28 Apr 58 | GUNNER Lachman

FOREMAN HAF | CHIEF BALLISTICIAN

ORDBA FORM SP 931 REV MAR 51

ARMY-RARITAN ARSENAL (RNPC), METUCHEN, NJ-58-224

Powder: SC 846	FRANKFORD ARSENAL PROOF HOUSE	PRIMER LOT 13 and 14
Charge: 45.8 grs	FUNCTION AND CASUALTY TEST	AMM'N. LOT
Primer: Rem #39	R & D 7-56	CALIBER 7.62mm
	AUTOMATIC & SEMI-AUTOMATIC WEAPONS	BULLET Ball
		CARTRIDGE Aluminum
		MFG. F.A.

GUN DATA

LOT		13A-1			13A-2	13A-3	14A-1	14A-2
TYPE OF GUN	HANGFIRE	T-44			T-44	T-44	T-44	T-44
NO. OF GUN		1491			1491	1491	1491	1491
ROUNDS IN GUN		5427			5564	5668	5465	5332
NO. OF BARREL		1			1	1	1	1
ROUNDS IN BARREL		5427			5564	5668	5465	5332
~~HEAD~~ SPACE B.S.		2.186"			2.186"	2.186"	2.186"	2.186"
PIN PROTRUSION		.052"			.052"	.052"	.052"	.052"
ROUNDS FIRED		95			99	104	38	55
RDS. IN BURST OR CLIPS		20 - 15			20 - 19	20 - 4	20 - 18	20 - 15
NO. OF BURSTS OR CLIPS		4 - 1			4 - 1	5 - 1	1 - 1	2 - 1
GUNNER		Robinson			Robinson	Robinson	Robinson	Robinson

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

Primer Leaks (Eroded head)		6 - L			4	1			
PRIMER LEAKS		29-L, 20-S			39-L, 21-S	10-L, 13-S	3-S	6-L, 4-S	
PRIMER PERFORATIONS									
LOOSE PRIMERS									
CASE SPLITS									
RUPTURE									
STRETCHES									
GAS FLASHES									
BREECH FLAMES									
BREECH SPARKS									
AMM. FUNCTION									

REMARKS: Hot Firing +165°

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20MM M24A1

RECORDER Seixas

W.O. 51702-02-11 DATE FIRED 9 May 58

FOREMAN _____ CHIEF BALLISTICIAN _____

ARMY-RARITAN ARSENAL(RAPID) METUCHEN, N.J.-52-1795

Powder: WC 846

Charge: 45.8 grs

Primer: Rem #39

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7 - 56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT 13
AMM'N. LOT
CALIBER 7.62mm
BULLET Ball
CARTRIDGE aluminum
MFG. F.A.

GUN DATA

LOT		13B-1		13B-2		13B-5		13B-6
TYPE OF GUN	HANGFIRE	T-44		T-44		T-44		T-44
NO. OF GUN		1491		1491		1491		1491
ROUNDS IN GUN		5829		5895		6075		5971
NO. OF BARREL		1		1		1		1
ROUNDS IN BARREL		5829		5895		6075		5971
~~HEAD~~ SPACE B.S.		2.186"		2.186"		2.186"		2.186"
PIN PROTRUSION		.052"		.052"		.052"		.052"
ROUNDS FIRED		105		76		104		66
RDS. IN BURST OR CLIPS		20 - 5		20 - 16		20 - 4		20 - 6
NO. OF BURSTS OR CLIPS		5 - 1		3 - 1		5 - 1		3 - 1
GUNNER		Robinson		Robinson		Robinson		Robinson

GUN FUNCTION

GROUP (MS)															
ZERO (MS)															

DEFECTS

Gas Eroded Head (Blown Primer)												1			
Primer Leaks (eroded heads)			29				16				49			12	
PRIMER LEAKS			10-L, 10-S				10-L, 12-S				17-L, 12-S			11-L, 15-S	
PRIMER PERFORATIONS															
LOOSE PRIMERS															
CASE SPLITS															
RUPTURE															
STRETCHES															
GAS FLASHES															
BREECH FLAMES															
BREECH SPARKS															
AMM. FUNCTION															

REMARKS: Hot Firing +165°

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 9 May 58

FOREMAN CHIEF BALLISTICIAN

ARMY-RARITAN ARSENAL/RAPDI, METUCHEN, NJ-52-1795

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

Powder: WC 846

Charge: 45.8
Primer: Rem #72
Lot 13C-1
Primer: Rem #39
Lot 13C-3

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT 13
AMM'N. LOT
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

LOT		13C-1			13C-3			
TYPE OF GUN	HANGFIRE	T-44			T-44			
NO. OF GUN		1491			1491			
ROUNDS IN GUN		5277			5724			
NO. OF BARREL		1			1			
ROUNDS IN BARREL		5277			5724			
~~HEAD~~ SPACE		B.S.			B.S.			
		2.186"			2.186"			
PIN PROTRUSION		.052"			.052"			
ROUNDS FIRED		72			56			
RDS. IN BURST OR CLIPS		20 -12			20 - 16			
NO. OF BURSTS OR CLIPS		3 - 1			2 - 1			
GUNNER		Robinson			Robinson			

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

Primer leaks (eroded heads) 28

PRIMER LEAKS	6-L, 2-S			13-L, 3-S				
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION								

REMARKS: Hot Firing: 165°

GM CAL. .30, B. M1917A1	R.U.S. CAL. .30 M1903A3	GM CAL. .50 M3 AC
GM CAL. .30, B. A. C.	PISTOL AUTO CAL. .45 M1911A1	GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4	GSM CAL. .45 M3-M3A1	GM CAL. .60 T59
GM CAL. .30, B. M1919A6	GM CAL. .22 M3-M4	GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2	GM CAL. .50, B. M2 AC	GA 20 MM M3
R.U.S. CAL. .30 M1	GM CAL. .50, B. M2 HB	GA 20 MM M24A1

RECORDER Seixas W.O. 51702-02-11 DATE FIRED 9 May 58

FOREMAN _____ CHIEF BALLISTICIAN _____

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL/RAPOI, METUCHEN, NJ-52-1765

POWDER Herc 5232.99
ARMY LOT
CHARGE 40.0
CASE Aluminum
PRIMER Rem #72 w/steel adapter

FRANKFORD ARSENAL PROOF TESTING SECTION

VELOCITY & PRESSURE REPORT

OBJECT: Verify Charge R & D 7-56

SPEC:

AMM. LOT 15
CALIBER 7.62mm
BULLET Ball M59
REF. RDS. 2-58
CTG. Ball M59

REC. NO.		BRL. NO.	TRFD.	A.L. 40633 CHG. 46.7
REC. NO. F.A. Universal #8		BRL. NO. R-69	TRFD. 1502	C-459, B-458, Pwd "2"
REC. NO.		BRL. NO.	TRFD.	V.V. 2758 F/S 2727 S/P
REC. NO. "	" "	BRL. NO. G-85	TRFD. 1383	P.V. 44,500 psi

	R-69				G-85				Wts
	Ref			Ref					
1.	2759		2744-	-265	43700-		-2638	46000	40.05
2.	2765		2746	2711	47100		2670	46100	40.86
3.	2743 -		2750	2727	47600/		2660	45400	40.02-
4.	2761		2787/	2700	45400		2657	47100/	40.03
5.	2785 /		2748	2725	46900		2650	44300-	40.07/
6.									
7.	13813	Total	13775	13558	230700		13275	228900	20023
8.	2763	Mean	2755	2712	46100		2655	45800	40.05
9.		Vel Cor	-5				/15	-1600	
10.		Cor Vel	2750				2670	44200	
11.	42	Ex Var	43	32	3900		32	2800	.05
12.		SD	16					900	
13.									
14.									
15.									
16.									
17.									
18.									
19.									
20.									

REMARKS:

Chrono #4
Range #9

CASES & PRIMERS OK
DATE FIRED 8/11/58

CHRONOGRAPH OP Helferty
GUNNER McFadden
FOREMAN H.A. Fala

W.O. 51702-02-11
CHIEF BALLISTICIAN

ORDBA FORM SP 931 REV MAR 51

ARMY-RARITAN ARSENAL (RARPC), METUCHEN, NJ-58-124

FRANKFORD ARSENAL PROOF TESTING SECTION

VELOCITY & PRESSURE REPORT

POWDER Hes. 5232.99 | AMM. LOT 15 A & B
ARMY LOT | CALIBER 7.62mm
CHARGE 40.0 GRS | BULLET Ball M59
OBJECT: Pressure Test
CASE Nato Aluminum
R & D-7-56
PRIMER Rem #72 steel adapter type | SPEC: | REF. RDS. 2-58
CTG. Ball M59 Nato
REC. NO. | BRL. NO. | TRED. | A.L. 40633 CHG. 46.7 GRS
REC. NO. F. A. Universal 22 | BRL. NO. G-109 | TRED. 305 | C-459 B-458 PWD "I"
REC. NO. | BRL. NO. | TRED. | V.V. 2727 F/S
REC. NO. | BRL. NO. | TRED. | P.V. 44,500 PSI

Normal

	Ref. Rds.			A			B					
1.	2711	45100		2710	44700		2685	42100/				
2.	2717	45200		2693	42900		-2673	41400				
3.	/2734	44500		2667	42800		2678	40800-				
4.	2718	46400/		/2714	44700/		2682	41700				
5.	-2701	43600-		-2666	41500-		/2696	41800				
6.	13581	224800	Total	13450	216600		13414	207800				
7.	2716	45000	Mean	2690	43300		2683	41600				
8.			Cor.	/11	-500		/11	-500				
9.			Cor.M.	2701	42800		2694	41100				
10.	33	2800	Ex.V.	48	3200		23	1300				
11.												
12.						Hot						
13.				A			B					
14.				2708	43800		2740	45100/				
15.				2721	44200		2728	42300				
16.				/2733	46300/		/2755	44800				
17.				2732	46100		-2695	40800-				
18.				-2694	43200-		2713	44500				
19.			Total	13588	223600		13631	217500				
20.			Mean	2718	44700		2726	43500				
			Cor.	/11	-500		/11	-500				
			Cor.M.	2729	44200		2737	43000				
			Ex.V.	39	3100		60	4300				

REMARKS:

Range 9
Chrono. 4

CHRONOGRAPH OP Sanderson W.O. 51702-02-11
CASES & PRIMERS ok GUNNER McFadden
DATE FIRED 8-27-58 FOREMAN S/G Fake CHIEF BALLISTICIAN

ORDBA FORM SP 931 REV MAR 51

ARMY-RARITAN ARSENAL (NMPC), METUCHEN, NJ-58-224

Powder: HES 5232.99 Charge: 40.0 Primer: Rem #72 with steel adapter	**FRANKFORD ARSENAL PROOF HOUSE** **FUNCTION AND CASUALTY TEST** R & D 7-56 **AUTOMATIC & SEMI-AUTOMATIC WEAPONS**	PRIMER LOT AMM'N. LOT 15A CALIBER 7.62mm BULLET Ball CARTRIDGE Aluminum MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	-70°F T-65				+165°F T-65		
NO. OF GUN		472701				472701		
ROUNDS IN GUN		23909				23869		
NO. OF BARREL		B-18				B-18		
ROUNDS IN BARREL		2033				1993		
~~HEAD~~ SPACE B.S.		2.184"				2.184"		
PIN PROTRUSION		.064"				.064"		
ROUNDS FIRED		40				47		
RDS. IN BURST OR CLIPS		40				47		
NO. OF BURSTS OR CLIPS		1				1		
GUNNER		Williams				Williams		

GUN FUNCTION

GROUP (MS)																		
ZERO (MS)																		

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK				OK		

REMARKS: Normal vent.

GM CAL .30, B. M1917A1 — R.U.S. CAL. .30 M1903A3 — GM CAL. .50 M3 AC
GM CAL. .30, B. A. C. — PISTOL AUTO CAL. .45 M1911A1 — GM CAL. .60 T17E5
GM CAL. .30, B. M1919A4 — GSM CAL. .45 M3-M3A1 — GM CAL. .60 T59
GM CAL. .30, B. M1919A6 — GM CAL. .22 M3-M4 — GA CAL. .60/20 MK 12
R.A. CAL. .30, B. M1918A2 — GM CAL. .50, B. M2 AC — GA 20 MM M3
R.U.S. CAL. .30 M1 — GM CAL. .50, B. M2 HB — GA 20MM M24A1

RECORDER Seixas — W.O. 51702-02-11 — DATE FIRED 29 Aug 58

FOREMAN HAF — CHIEF BALLISTICIAN

ARMY-RARITAN ARSENAL/RAPO/-METUCHEN, NJ-52-1795

ORDDA FORM SP 2 MAR 52 (FORMERLY ORDDA 675 WHICH IS OBSOLETE)

Powder: HES 5232.99

Charge: 40.0

Primer: Rem #72 with steel adapter

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 15B

CALIBER 7.62mm

BULLET Ball

CARTRIDGE Aluminum

MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	∠70°F T-65			∠165°F T-65			
NO. OF GUN		472701			472701			
ROUNDS IN GUN		23955			23822			
NO. OF BARREL		B-18			B-18			
ROUNDS IN BARREL		2079			1946			
~~XXXXX~~ SPACE B.S.		2.184"			2.184"			
PIN PROTRUSION		.064"			.064"			
ROUNDS FIRED		46			46			
RDS. IN BURST OR CLIPS		46			46			
NO. OF BURSTS OR CLIPS		1			1			
GUNNER		Williams			Williams			

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK			OK			

REMARKS: Enlarged vent hole .1093

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas

W.O. 51702-02-10 DATE FIRED 29 Aug 58

FOREMAN HAF

CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSEN.(LIRAPD)-METUCHEN,NJ-52-1795

Powder: HES 5232.99

Charge: 40.0

Primer: Rem #72 with steel adapter

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT Rejects
AMM'N. LOT 16-T
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

165°F

GUN DATA

TYPE OF GUN	HANGFIRE	Cut Head T-65	Trip U T-65		High Primer T-65	Low Primer T-65		Thick Head T-65
NO. OF GUN		472701	472701		472701	472701		472701
ROUNDS IN GUN		27297	27317		27332	27375		27419
NO. OF BARREL		28	28		28	28		28
ROUNDS IN BARREL		3836	3856		3871	3874		3888
~~HEAD~~ SPACE B.S.		2.183"	2.183"		2.183"	2.183"		2.183"
PIN PROTRUSION		.067"	.067"		.067"	.067"		.067"
ROUNDS FIRED		19	11		15	3		14
RDS. IN BURST OR CLIPS		19	11		15	3		14
NO. OF BURSTS OR CLIPS		1	1		1	1		1
GUNNER		Gambino	Gambino		Gambino	Bambino		Gambino

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS									
PRIMER PERFORATIONS									
LOOSE PRIMERS									
CASE SPLITS									
RUPTURE									
STRETCHES									
GAS FLASHES									
BREECH FLAMES									
BREECH SPARKS									
AMM. FUNCTION		OK	OK		OK	OK		OK	

REMARKS:

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas

W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN _____ CHIEF BALLISTICIAN _____

ARMY-RARITAN ARSENAL (BOUND METUCHEN, N.J.) 52 1793

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

Powder: HPS 5232.99

Charge: 40.0

Primer: Rem #72 with steel adapter

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT rejects
AMM'N. LOT 16-T
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

165°F

GUN DATA

TYPE OF GUN	HANGFIRE	Large Head Dia. T-65			Bad Profile T-65	Short Length T-65		Long Head to shoulder T-65
NO. OF GUN		472701			472701	472701		472701
ROUNDS IN GUN		27306			27305	27355		27278
NO. OF BARREL		28			28	28		28
ROUNDS IN BARREL		3845			3844	3894		3818
~~HEAD~~ SPACE B.S.		2.183"			2.183"	2.183"		2.183"
PIN PROTRUSION		.067"			.067"	.067"		.064"
ROUNDS FIRED		1			8	6		7
RDS. IN BURST OR CLIPS		1			8	6		7
NO. OF BURSTS OR CLIPS		1			1	1		1
GUNNER		Cambino			Cambino	Cambino		Cambino

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE Complete								1-SJ
STRETCHES								1
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK			OK	OK		*

REMARKS:

* 1 stoppage due to complete rupture

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSK CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL (RAPO), METUCHEN, N.J.-52-1795

Powder: HES 5232.99	FRANKFORD ARSENAL PROOF HOUSE	PRIMER LOT
Charge: 40.0	FUNCTION AND CASUALTY TEST	AMM'N. LOT 16-T
Primer: Rem #72 with steel adapter	R & D 7-56	CALIBER 7.62mm
	AUTOMATIC & SEMI-AUTOMATIC WEAPONS	BULLET Ball
		CARTRIDGE Aluminum
		MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	+70°F T-65			+165°F T-65	+165°F T-65		-40°F T-65
NO. OF GUN		472701			472701	472701		472701
ROUNDS IN GUN		25795			26325	26365		26805
NO. OF BARREL		B-18			B-18	28		28
ROUNDS IN BARREL		3919			4449	2865		3345
HEAD SPACE		2.184"			2.184"	2.183"		2.183"
PIN PROTRUSION		.064"			.064"	.064"		.064"
ROUNDS FIRED		240			200	40		240
RDS. IN BURST OR CLIPS		100 - 40			100	40		100 - 40
NO. OF BURSTS OR CLIPS		2 - 1			2	1		2 - 1
GUNNER		Baker			Baker	Baker		Baker

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

Burn Through					4(k)			
PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS		1-S						
RUPTURE Complete Rim Shear					8			
~~STOPPAGES~~ Partial Rupture								1 (J)
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION					*	OK		

REMARKS:

* 8 stoppages due to rim shears - changed barrel after the burn through appeared

GM CAL .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Sanger - Seixas W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN ____ CHIEF BALLISTICIAN ____

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE) ARMY-RARITAN ARSENAL (RAPD) METUCHEN, N.J.-52-1795

Powder: HES 5232.9?

Charge: 40.0

Primer: Rem #72 with steel adapter

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT reject
AMM'N. LOT 16-T-R
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

165°F

GUN DATA

TYPE OF GUN	HANGFIRE	Thick heads T-65			High Primer T-65	Trip Ups T-65		Long Head to shoulder T-65
NO. OF GUN		472701			472701	472701		472701
ROUNDS IN GUN		27247			27218	27213		27209
NO. OF BARREL		28			28	28		28
ROUNDS IN BARREL		3786			3758	3753		3749
HEAD SPACE		2.183"			2.183"	2.183"		2.183"
PIN PROTRUSION		.064"			.064"	.064"		.064"
ROUNDS FIRED		12			5	2		4
RDS. IN BURST OR CLIPS		12			5	2		4
NO. OF BURSTS OR CLIPS		1			1	1		1
GUNNER		Gambino			Gambino	Gambino		Gambino

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK			OK	OK		OK

REMARKS:

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN _____ CHIEF BALLISTICIAN _____

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-MARTIAN ARSENAL(RAPID) METUCHEN, NJ-52-1795

Powder: HES 5232.99
Charge: 40.0
Primer: Rem #72 with steel adapter

FRANKFORD ARSENAL PROOF HOUSE
FUNCTION AND CASUALTY TEST
R & D 7-56
AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 16-T-R
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

GUN DATA

TYPE OF GUN	HANGFIRE	+70°F T-65	+165°F T-65	-40°F T-65		+70°F T-44	+165°F T-44
NO. OF GUN		472701	472701	472701		1491	1355
ROUNDS IN GUN		25845	27105	27070		14217	11495
NO. OF BARREL		B-18	28	28		1	1
ROUNDS IN BARREL		3969	3645	3610		14217	11495
HEAD SPACE		2.184"	2.183"	2.183"		2.186"	2.188"
PIN PROTRUSION		.064"	.064"	.064"		.057"	.056"
ROUNDS FIRED		50	35	25		27	25
RDS. IN BURST OR CLIPS		50	35	25		20 - 7	20 - 5
NO. OF BURSTS OR CLIPS		1	1	1		1 - 1	1 - 1
GUNNER		Baker	Baker	Baker		Gambino	Gambino

GUN FUNCTION

GROUP (MS)																	
ZERO (MS)																	

DEFECTS

Burn Through S-K

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS						2 - I		
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK	OK	OK			*	

REMARKS:

* 5 stoppages due to burn through

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E3
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Langer-Seixas W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN CHIEF BALLISTICIAN

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL(RAPD), METUCHEN, N.J.-52-1795

Powder: HES 5232.99

Charge: 40.0

Primer: Rem #72 with steel adapter

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT rejects
AMM'N. LOT 16-0
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Aluminum
MFG. F.A.

165 F

GUN DATA

TYPE OF GUN	HANGFIRE	Trip Ups T-65	Thick Head T-65	Thin Head T-65	Cut Head T-65	Big T-65	Long Profile T-65	Long head to shoulder T-65
NO. OF GUN		472701	472701	472701	472701	472701	472701	472701
ROUNDS IN GUN		27271	27235	27229	27228	27225	27208	27222
NO. OF BARREL		28	28	28	28	28	28	28
ROUNDS IN BARREL		3810	3774	3769	3768	3765	3748	3762
~~HEAD~~ SPACE B.S.		2.183"	2.183"	2.183"	2.183"	2.183"	2.183"	2.183"
PIN PROTRUSION		.064"	.064"	.064"	.064"	.065"	.064"	.064"
ROUNDS FIRED		24	5	1	3	3	3	4
RDS. IN BURST OR CLIPS		24	5	1	3	3	3	4
NO. OF BURSTS OR CLIPS		1	1	1	1	1	1	1
GUNNER		Gambino	Gambino	Gambino	Gambino	Gambino	Gambino	Gambino

GUN FUNCTION

GROUP (MS)														
ZERO (MS)														

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE						1 - SJ		1 - SJ
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK	OK	OK	OK		OK	

REMARKS:

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S. CAL. .30 M1
R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB
GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN _____ CHIEF BALLISTICIAN _____

ORDBA FORM SP-2 MAR 57 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

ARMY-RARITAN ARSENAL(RAPDI.METUCHEN.NJ-52-1795

Powder: HES 5232.99

Charge: 40.0

Primer: Rem #72 with steel adapter

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R & D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT

AMM'N. LOT 16-0

CALIBER 7.62mm

BULLET Ball

CARTRIDGE Aluminum

MFG.

GUN DATA

TYPE OF GUN	HANGFIRE	+70°F T-65			+165°F T-65			+70°F T-44		
NO. OF GUN		472701			472701			1491		
ROUNDS IN GUN		26085			26525			14502		
NO. OF BARREL		P-18			28			1		
ROUNDS IN BARREL		4209			3065			14502		
HEAD SPACE		2.184"			2.183"			2.186"		
PIN PROTRUSION		.064"			.064"			.057"		
ROUNDS FIRED		240			240			280		
RDS. IN BURST OR CLIPS		100 - 40			100 - 40			20		
NO. OF BURSTS OR CLIPS		2 - 1			2 - 1			14		
GUNNER		Baker			Baker			Gambino		

GUN FUNCTION

GROUP (MS)																		
ZERO (MS)																		

DEFECTS

Flow Back of Metal in Primer Pocket 90%

PRIMER LEAKS																		
PRIMER PERFORATIONS																		
LOOSE PRIMERS																		
CASE SPLITS																		
~~RUPTURE~~ Complete Rim Shear			3															
STRETCHES																		
GAS FLASHES																		
BREECH FLAMES																		
BREECH SPARKS																		
AMM. FUNCTION			*								OK							

REMARKS:

* 3 stoppages: rim shears

GM CAL. .30, B. M1917A1 — R.U.S. CAL. .30 M1903A3 — GM CAL. .50 M3 AC

GM CAL. .30, B. A. C. — PISTOL AUTO CAL. .45 M1911A1 — GM CAL. .60 T17E5

GM CAL. .30, B. M1919A4 — GSM CAL. .45 M3-M3A1 — GM CAL. .60 T59

GM CAL. .30, B. M1919A6 — GM CAL. .22 M3-M4 — GA CAL. .60/20 MK 12

R.A. CAL. .30, B. M1918A2 — GM CAL. .50, B. M2 AC — GA 20 MM M3

R.U.S. CAL. .30 M1 — GM CAL. .50, B. M2 HB — GA 20 MM M24A1

RECORDER Sanger - Seixas W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN CHIEF BALLISTICIAN

ARMY-RARITAN ARSENAL(RAPO)-METUCHEN,NJ-52-1765

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

HES 5232.99

40.0 grains

Remington #72
with steel adapter

165°F

FRANKFORD ARSENAL PROOF HOUSE

FUNCTION AND CASUALTY TEST

R&D 7-56

AUTOMATIC & SEMI-AUTOMATIC WEAPONS

PRIMER LOT
AMM'N. LOT 16 T-O
CALIBER 7.62mm
BULLET Ball
CARTRIDGE Alum
MFG. FA

GUN DATA

TYPE OF GUN	HANGFIRE	Large Head Diameter T65						
NO. OF GUN		472701						
ROUNDS IN GUN		27873						
NO. OF BARREL		28						
ROUNDS IN BARREL		4412						
~~XXXX~~ SPACE B.S.		2.183"						
PIN PROTRUSION		.064"						
ROUNDS FIRED		418						
RDS. IN BURST OR CLIPS		100 - 18						
NO. OF BURSTS OR CLIPS		4 - 1						
GUNNER		Ganbino						

GUN FUNCTION

GROUP (MS)																
ZERO (MS)																

DEFECTS

PRIMER LEAKS								
PRIMER PERFORATIONS								
LOOSE PRIMERS								
CASE SPLITS								
RUPTURE								
STRETCHES								
GAS FLASHES								
BREECH FLAMES								
BREECH SPARKS								
AMM. FUNCTION		OK						

REMARKS:

GM CAL. .30, B. M1917A1
GM CAL. .30, B. A. C.
GM CAL. .30, B. M1919A4
GM CAL. .30, B. M1919A6
R.A. CAL. .30, B. M1918A2
R.U.S CAL. .30 M1

R.U.S. CAL. .30 M1903A3
PISTOL AUTO CAL. .45 M1911A1
GSM CAL. .45 M3-M3A1
GM CAL. .22 M3-M4
GM CAL. .50, B. M2 AC
GM CAL. .50, B. M2 HB

GM CAL. .50 M3 AC
GM CAL. .60 T17E5
GM CAL. .60 T59
GA CAL. .60/20 MK 12
GA 20 MM M3
GA 20 MM M24A1

RECORDER Seixas W.O. 83805-10-01 DATE FIRED 20 Oct 58

FOREMAN CHIEF BALLISTICIAN

ARMY-RARITAN ARSENAL(RAPPI.-METUCHEN.NJ-52-1795

ORDBA FORM SP-2 MAR 52 (FORMERLY ORDBA 675 WHICH IS OBSOLETE)

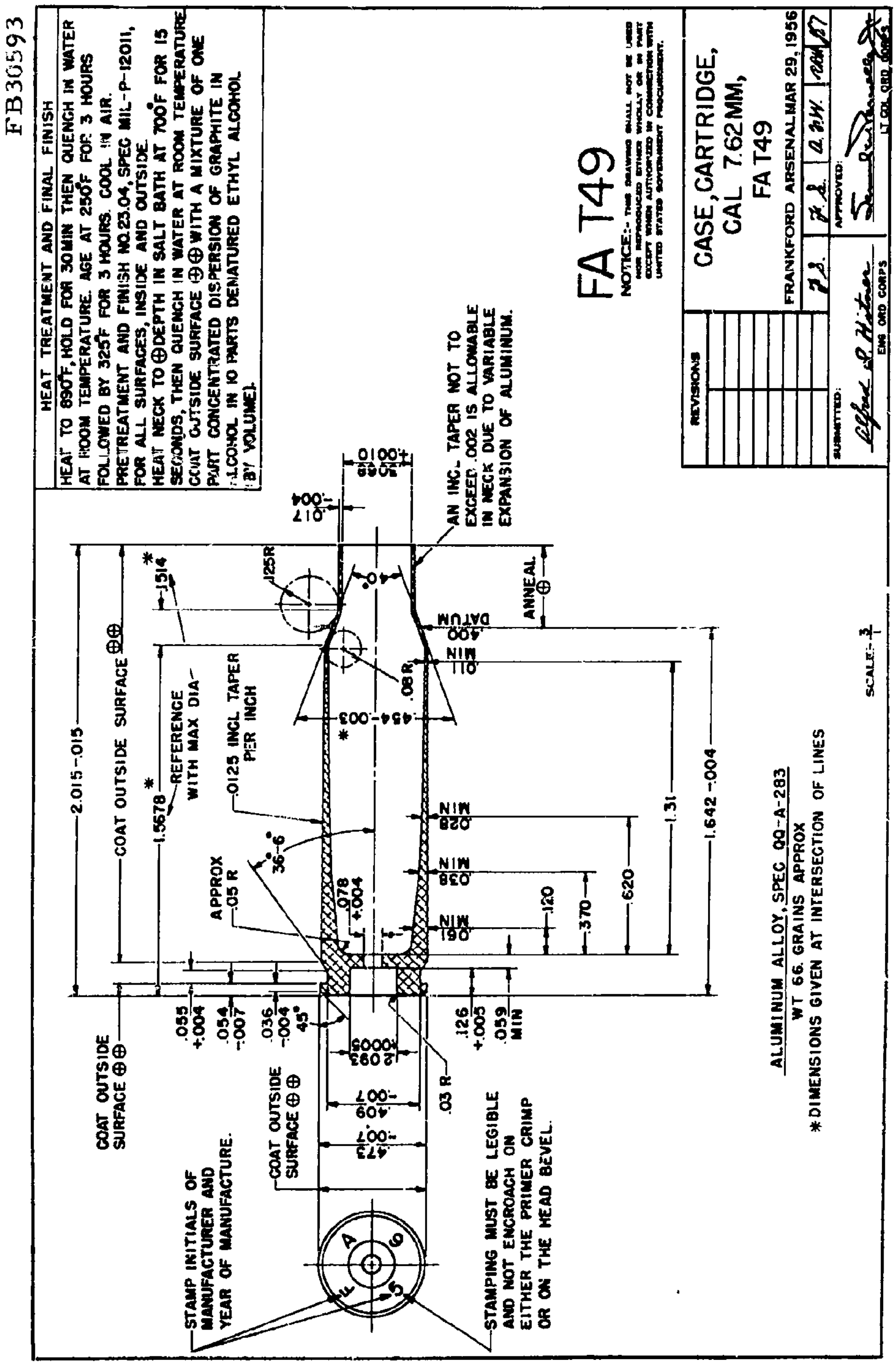
FB36593
HEAT TREATMENT AND FINAL FINISH
HEAT TO 890°F, HOLD FOR 30 MIN THEN QUENCH IN WATER AT ROOM TEMPERATURE. AGE AT 250°F FOR 3 HOURS FOLLOWED BY 325°F FOR 3 HOURS. COOL IN AIR.
PRETREATMENT AND FINISH NO.23.04, SPEC MIL-P-12011, FOR ALL SURFACES, INSIDE AND OUTSIDE.
HEAT NECK TO ⊕ DEPTH IN SALT BATH AT 700°F FOR 15 SECONDS, THEN QUENCH IN WATER AT ROOM TEMPERATURE.
COAT OUTSIDE SURFACE ⊕⊕ WITH A MIXTURE OF ONE PART CONCENTRATED DISPERSION OF GRAPHITE IN ALCOHOL IN 10 PARTS DENATURED ETHYL ALCOHOL (BY VOLUME).
FA T49
CASE, CARTRIDGE, CAL 7.62MM, FA T49
FRANKFORD ARSENAL MAR 29, 1956
REVISIONS
SUBMITTED:
APPROVED:
ENG ORD CORPS
AN INC. TAPER NOT TO EXCEED .002 IS ALLOWABLE IN NECK DUE TO VARIABLE EXPANSION OF ALUMINUM.
ALUMINUM ALLOY, SPEC QQ-A-283
WT 66 GRAINS APPROX
*DIMENSIONS GIVEN AT INTERSECTION OF LINES
STAMP INITIALS OF MANUFACTURER AND YEAR OF MANUFACTURE.
STAMPING MUST BE LEGIBLE AND NOT ENCROACH ON EITHER THE PRIMER CRIMP OR ON THE HEAD BEVEL.
COAT OUTSIDE SURFACE ⊕⊕
2.015-.015
1.5578 REFERENCE WITH MAX DIA
.0125 INCL TAPER PER INCH
1.642-.004
1.31
.620
.370
.120
ANNEAL ⊕
DATUM .400
.011 MIN
.028 MIN
.038 MIN
.061 MIN
.454-.003
.08 R
.125R
.1514
APPROX .05 R
36°-6°
.03 R
45°
SCALE

Figure C-1

FB38671

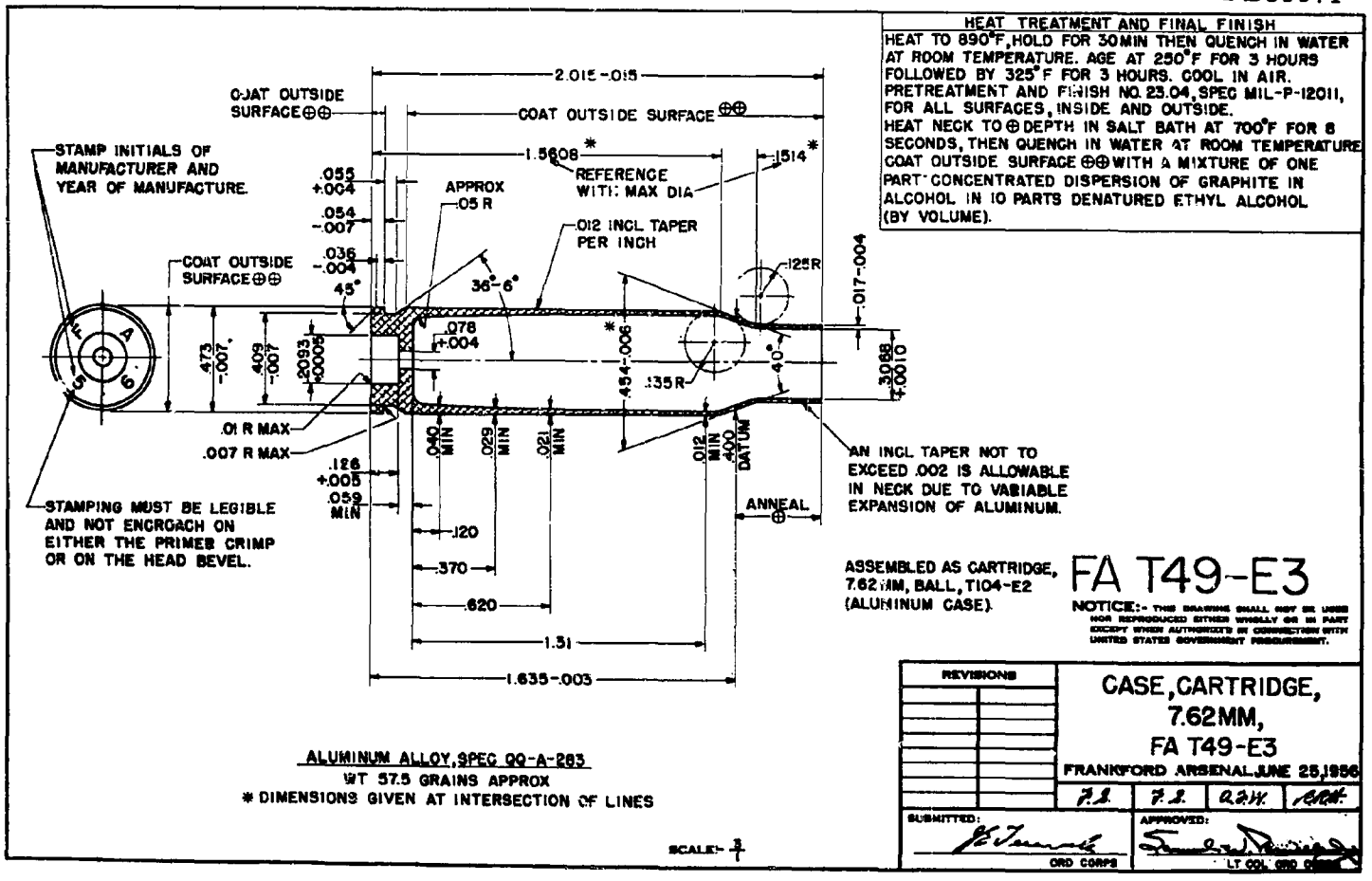

Figure C-2

FB30594

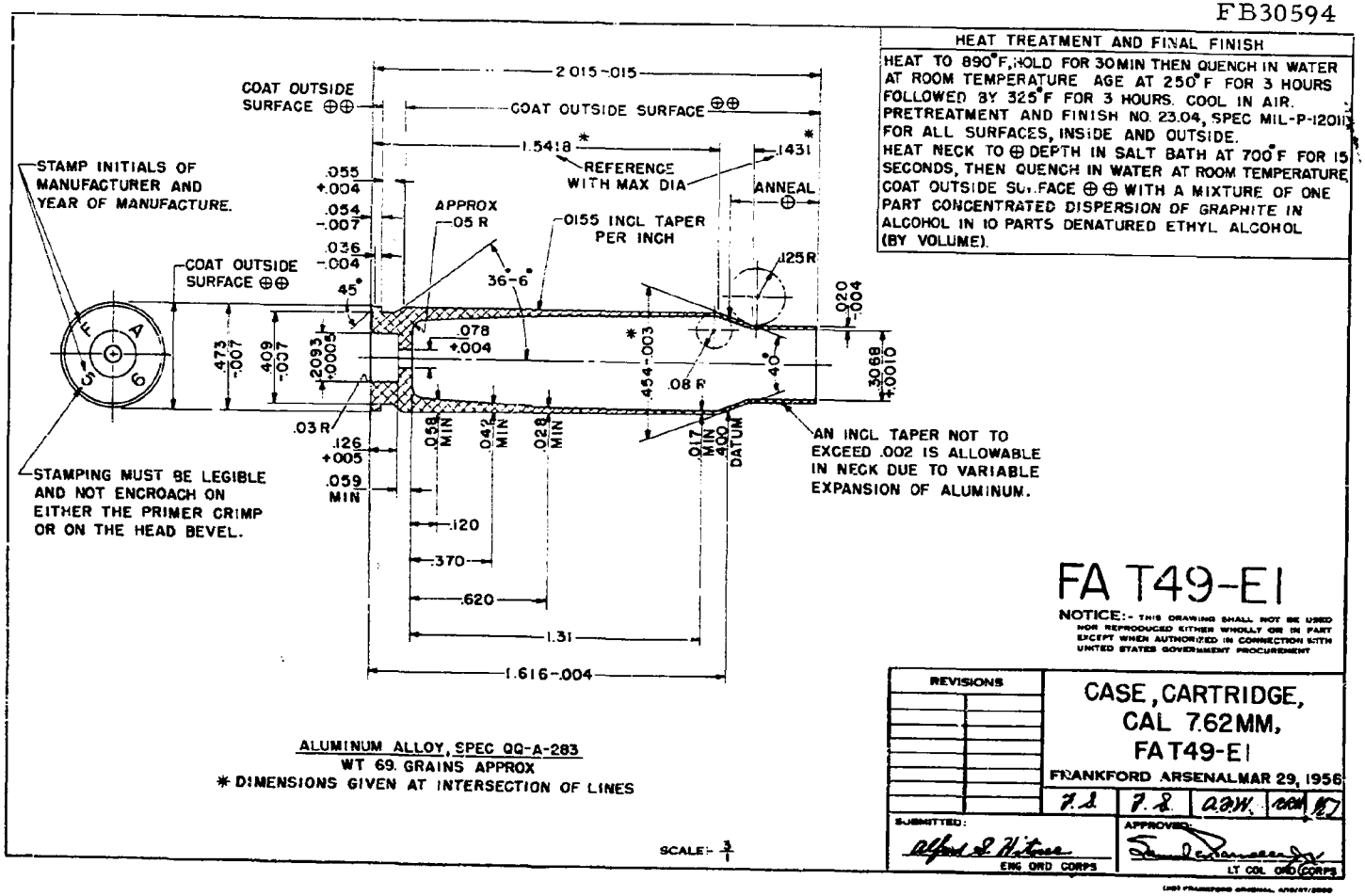

Figure C-3

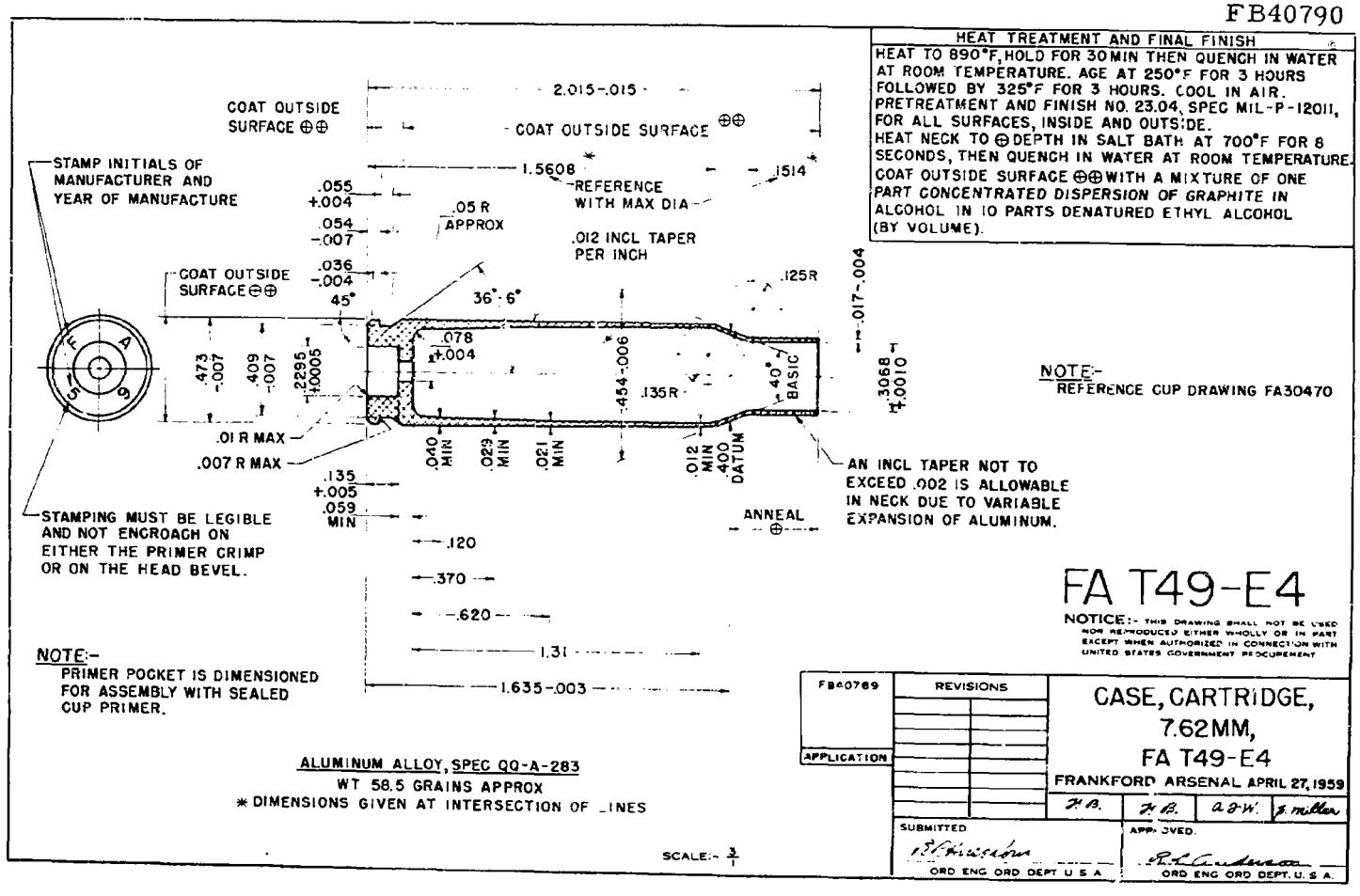
FB40790
HEAT TREATMENT AND FINAL FINISH
HEAT TO 890°F, HOLD FOR 30 MIN THEN QUENCH IN WATER AT ROOM TEMPERATURE. AGE AT 250°F FOR 3 HOURS FOLLOWED BY 325°F FOR 3 HOURS. COOL IN AIR.
PRETREATMENT AND FINISH NO. 23.04, SPEC MIL-P-12011, FOR ALL SURFACES, INSIDE AND OUTSIDE.
HEAT NECK TO ⊕ DEPTH IN SALT BATH AT 700°F FOR 8 SECONDS, THEN QUENCH IN WATER AT ROOM TEMPERATURE.
COAT OUTSIDE SURFACE ⊕⊕ WITH A MIXTURE OF ONE PART CONCENTRATED DISPERSION OF GRAPHITE IN ALCOHOL IN 10 PARTS DENATURED ETHYL ALCOHOL (BY VOLUME).
COAT OUTSIDE SURFACE ⊕⊕
2.015-.015
COAT OUTSIDE SURFACE ⊕⊕
STAMP INITIALS OF MANUFACTURER AND YEAR OF MANUFACTURE
1.5608
REFERENCE WITH MAX DIA
.1514
.055 +.004
.054 -.007
.05 R APPROX
.012 INCL TAPER PER INCH
.036 -.004
COAT OUTSIDE SURFACE ⊖⊕
45°
36° 6'
.125R
.017-.004
.078 ±.004
.473 -.007
.409 -.007
.2295 +.0005
.454-.006
.135R
40° BASIC
.3068 +.0010
NOTE:- REFERENCE CUP DRAWING FA30470
.01 R MAX
.007 R MAX
.040 MIN
.029 MIN
.021 MIN
.012 MIN
.400 DATUM
AN INCL TAPER NOT TO EXCEED .002 IS ALLOWABLE IN NECK DUE TO VARIABLE EXPANSION OF ALUMINUM.
.135 +.005
.059 MIN
ANNEAL
STAMPING MUST BE LEGIBLE AND NOT ENCROACH ON EITHER THE PRIMER CRIMP OR ON THE HEAD BEVEL.
.120
.370
.620
1.31
1.635-.003
NOTE:- PRIMER POCKET IS DIMENSIONED FOR ASSEMBLY WITH SEALED CUP PRIMER.
ALUMINUM ALLOY, SPEC QQ-A-283
WT 58.5 GRAINS APPROX
* DIMENSIONS GIVEN AT INTERSECTION OF LINES
SCALE:- 3/1
FA T49-E4
NOTICE:- THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT
FB40789
APPLICATION
REVISIONS
CASE, CARTRIDGE, 7.62MM, FA T49-E4
FRANKFORD ARSENAL APRIL 27, 1959
F.B.
F.B.
A.D.W.
J. Miller
SUBMITTED
ORD ENG ORD DEPT U S A
APPROVED.
ORD ENG ORD DEPT. U. S. A.

Figure C-4

FB38701

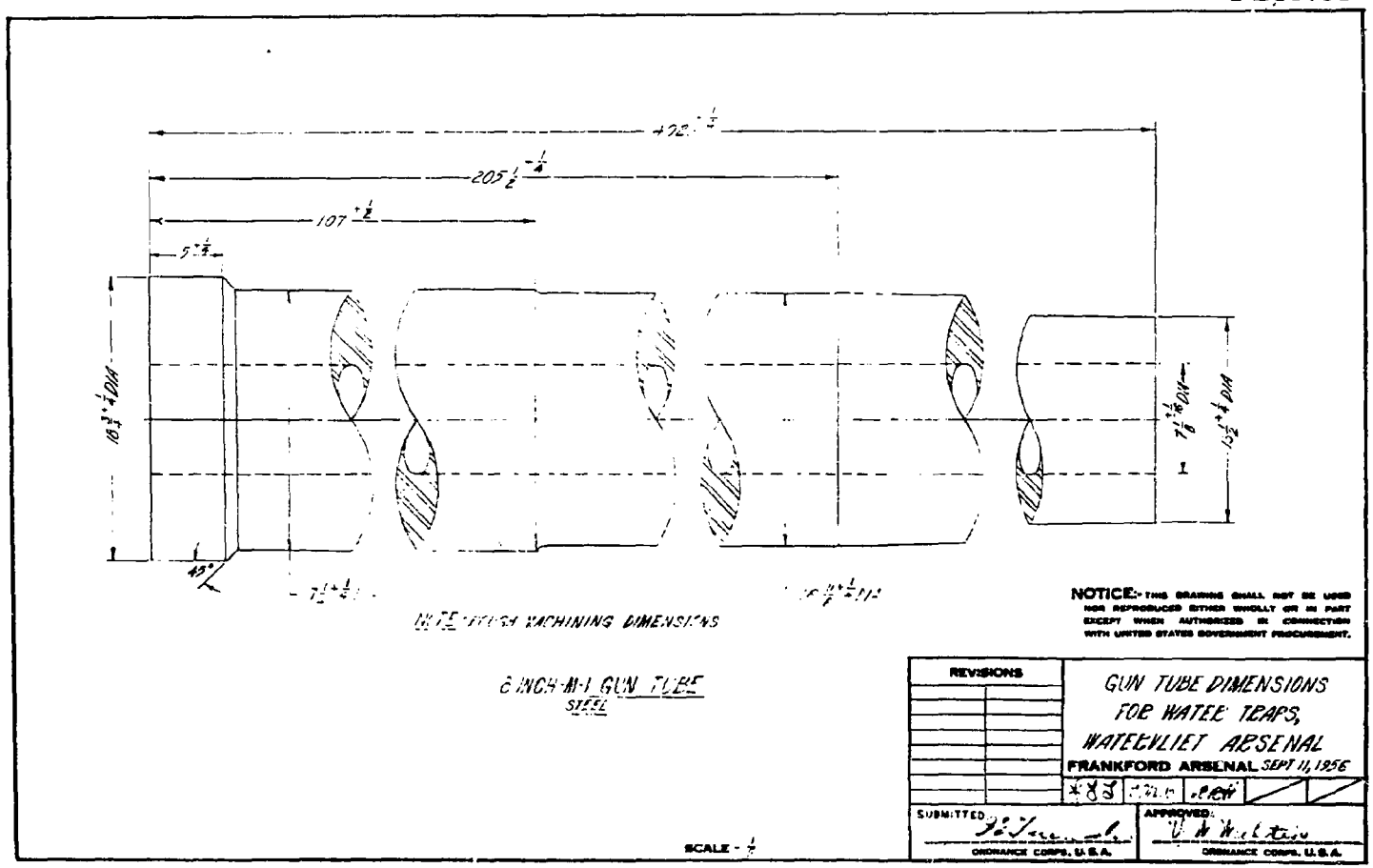

Figure C-5

FB38702-1

PLAN OF WORK

NO	OPERATION	DRAWING NUMBER TOOL	DRAWING NUMBER BLANK
	CASE	FB38671	
	BLANK & CUP		
	BLANK PUNCH	FB39356	
	BLANK PUNCH (ALT.)	FB38703	
	CUP PUNCH	FB38704	
	BLANK & CUP DIE	FB39354	
	BLANK & CUP DIE (ALT.)	FB38705	
	SIZE DIE	FB39355	
	DIE ANVIL	F5A3679	
	STRIPPER	FB38706	
	STRIPPER HOLDER	F5A3682	
	STRIPPER SPRING	F5A3682	
	WASH, RINSE, DRY		
	ANNEAL OF CUP - 700°F FOR ½ HR.		
	WASH, RINSE, DRY & LUBRICATE		
	1ST DRAW		
	PUNCH	FB38707	
	TOP DIE	FB38708	
	BOTTOM DIE	FB38709	
	STRIPPER	FB38710	
	PLATE BUSHING	FB38715	
	DIE RING	FB38716	
	WASH, RINSE, DRY		
	ANNEAL - 700°F FOR ½ HR.		
	WASH, RINSE, DRY & LUBRICATE		
	2ND DRAW		
	PUNCH	PT 113	
	TOP DIE	F5A6803	
	BOTTOM DIE	F5A6803	
	STRIPPER (TYPE #19)	FB10858	

NO	OPERATION	DRAWING NUMBER TOOL	DRAWING NUMBER BLANK
	WASH, RINSE, DRY.		
	ANNEAL - 700°F FOR ½ HR.		
	WASH, RINSE, DRY & LUBRICATE		
	3RD DRAW		
	PUNCH	FB40693	
	TOP DIE	F5A6804	
	BOTTOM DIE	F5A6804	
	STRIPPER (TYPE #19)	FB10858	
	WASH, RINSE, DRY		
	ANNEAL - 700°F FOR ½ HR.		
	WASH, RINSE, DRY & LUBRICATE		
	4TH DRAW		
	PUNCH	FB39331	
	TOP DIE	F5A6805	
	BOTTOM DIE	PT132	
	STRIPPER (TYPE #12)	FB10858	
	WASH, RINSE, DRY		

REVISIONS: ① 3-27-59

CASE, CARTRIDGE, 7.62MM FA T49-E3 (ALUM)
PLAN OF WORK
FRANKFORD ARSENAL SEPT. 26, 1958

SUBMITTED: [signature] ORDNANCE CORPS, U.S.A.
APPROVED: [signature] ENG. ORDNANCE CORPS, U.S.A.

Figure C-6-1

FB38702-2

PLAN OF WORK

NO	OPERATION	DRAWING NUMBER TOOL	BLANK
	FIRST TRIM		
	SPINDLE	FSAG117	
	SLEEVE	FSAG118	
	BURRING CUTTER	FSAG119	
	NUT	FSAG120	
	CUTTER	PT 126	
	STRIPPER RING	FSAG122	
	SPRING	FSAG123	
	HEAD		
	HOLDER	FB40694	
	PUNCH ANVIL	PT1040	
	PUNCH	FB40695	
	DIE	FSAG131	
	DIE ANVIL	FSAG132	
	EJECT STEM	FSAG133	
	WASH, RINSE, DRY		
	HEAD TURN		
	FORM TOOL	FB40696	
	FACING TOOL	PT1007	
	COLLET	PT1008	
	SPRING	FT1009	
	WASH, RINSE, DRY		
	ANNEAL - 750°F FOR 2HRS, COOL AT 50°F PER HR. TO 400°F, COOL AT ROOM TEMP.		
	SPREAD MOUTH		
	PUNCH	FSAG138	
	1ST TAPER		
	SHOULDER DIE	FSAG139	
	BODY DIE	FSAG140	
	DIE ANVIL	FSAG141	
	EJECT STEM	FSAG142	

NO	OPERATION	DRAWING NUMBER TOOL	BLANK
	2ND TAPER		
	SHOULDER DIE	FSAG143	
	BODY DIE	FSAG144	
	DIE ANVIL	FSAG141	
	EJECT STEM	FSAG145	
	PLUG		
	PUNCH	FSAG146	
	WASH, RINSE, DRY		
	FINISH TRIM (VERTICAL)		
	CUTTER	PT1010	
	CUTTER HOLDER	FSAG147	
	RETAINER SEAT	FSAG150	
	CASE SUPPORT	FSAG148	
	SUPPORT COVER	FSAG149	
	CUTTER CLAMP	FSAG149	
	VENT (PRIMER MACHINE)		
	SOLUTION HEAT TREAT (HEAD STACKED DOWN) 900°F FOR ½ HR.		

REVISIONS	

CASE, CARTRIDGE, 7.62MM FA T49-E3 (ALUM)
PLAN OF WORK
FRANKFORD ARSENAL SEPT 26 1958

SUBMITTED: R. C. Anderson, ORDNANCE CORPS, U.S.A.
APPROVED: J. V. Holter, ENG. ORDNANCE CORPS, U.S.A.

Figure C-6-2

FB38702-3

PLAN OF WORK

NO	OPERATION	DRAWING NUMBER TOOL	DRAWING NUMBER BLANK	NO	OPERATION	DRAWING NUMBER TOOL	DRAWING NUMBER BLANK
	AGE HARDEN 250°F FOR 3HRS. COOL FOR 1 HR. 325°F FOR 3HRS. COOL AT ROOM TEMP.						
	ANODIZE						
	INSPECT						
	MOUTH ANNEAL 700°F FOR 8 SECONDS						
	DRYING						
	"DAG" COAT						
	PRIME						

NOTICE:- THIS DRAWING SHALL NOT BE USED NOR REPRODUCED EITHER WHOLLY OR IN PART EXCEPT WHEN AUTHORIZED IN CONNECTION WITH UNITED STATES GOVERNMENT PROCUREMENT.

REVISIONS	CASE, CARTRIDGE, 7.62MM FA T49-E3 (ALUM) PLAN OF WORK FRANKFORD ARSENAL SEPT 26, 1958
	SUBMITTED: R. E. Anderson, ORDNANCE CORPS, U.S.A.
	APPROVED: W. H. Walter, ENG. ORDNANCE CORPS, U.S.A.

Figure C-6-3

FB38703

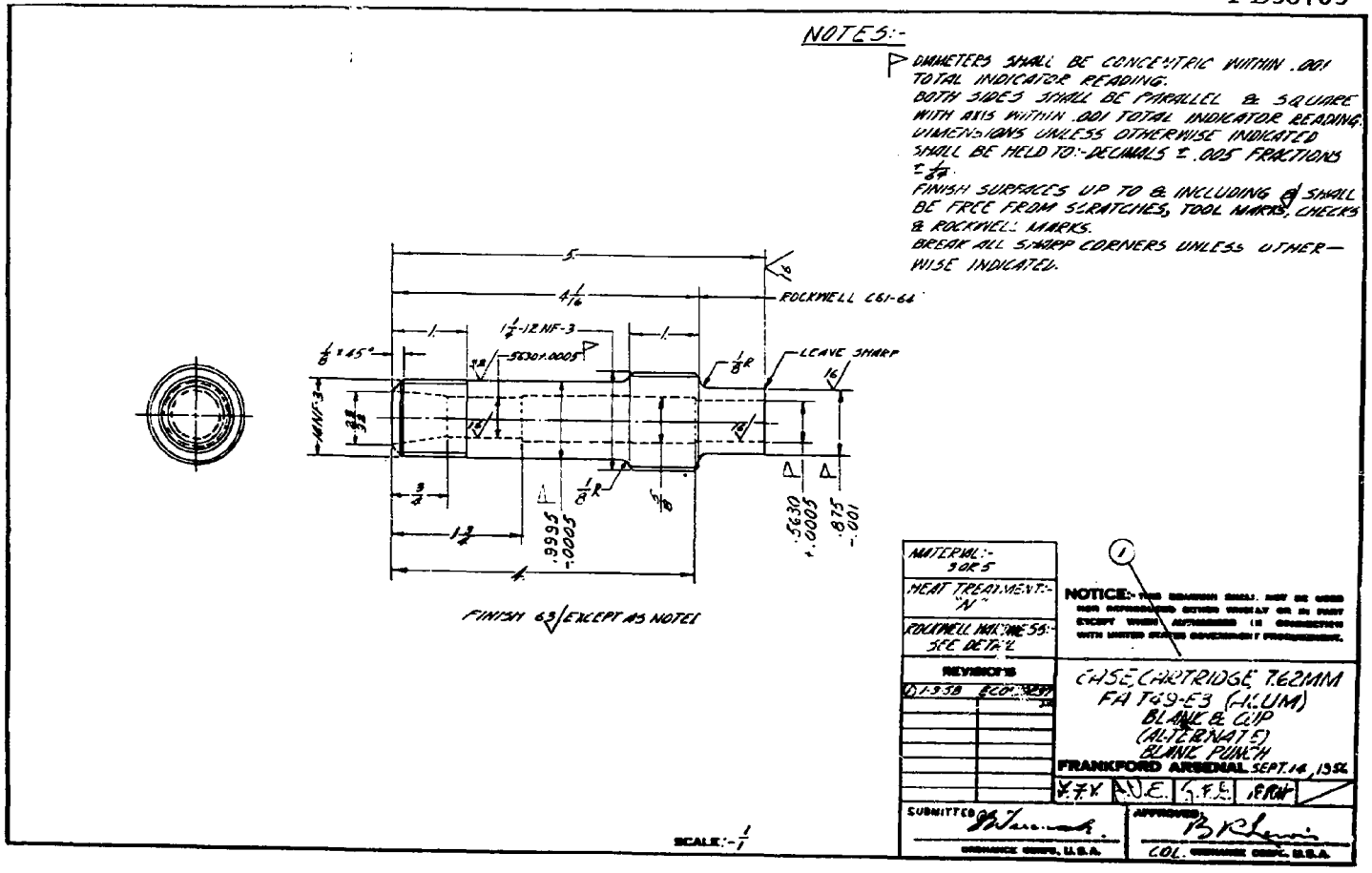

Figure C-7

860°F - 30 minutes

870°F - 25 minutes

Figures D-1 & D-2. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X

870°F - 30 minutes

870°F - 35 minutes

Figures D-3 & D-4. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X

870°F - 40 minutes

880°F - 30 minutes

Figures D-5 & D-6. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X

890°F - 25 minutes

890°F - 30 minutes

Figures D-7 & D-8. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X

900°F - 30 minutes

Figure D-9. Photomicrographs of Sections of 30 Cal. Aluminum Cases Subjected to Varying Solution Quench Treatments 500X

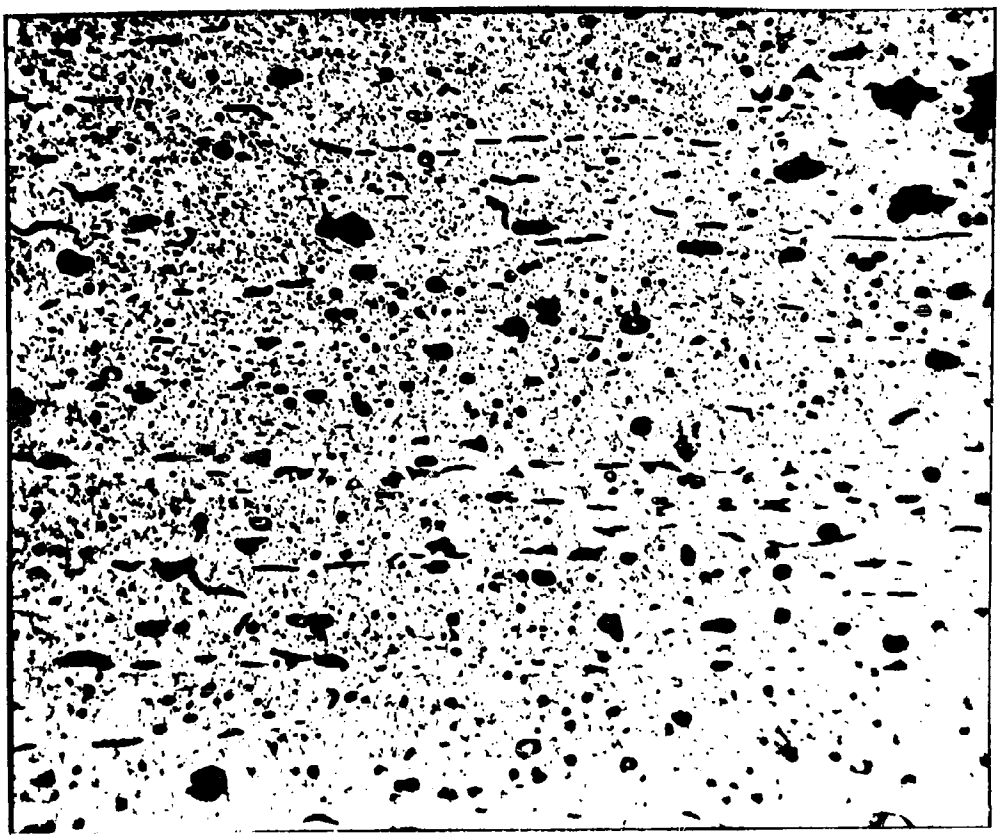

Figure D-10. 7075-0 Material "as received"

Figure D-11. 7075-T6 Material After Annealing

Figure D-12. 7075-0 Material After Solution Quench Treatment and Annealing

APPENDIX E

PROCEDURE FOR ANODIZING ALUMINUM CARTRIDGE CASES

1. Rack cases.

2. Clean in inhibited alkaline cleaner (.5 lbs Oakite #61 per gal water at 180° - 190°F/15').

3. Rinse in cold water.

4. Pickle (1.43 lbs sulfuric acid - 61 Baume - plus .27 lbs chromic acid per gal. water/10').

5. Rinse in cold water.

6. Anodize for 30 min. in a 15 to 18% solution of sulfuric acid (by volume) in water. Bath temperature 70° ± 2°F. Voltage, 18 to 24. Current density, 3 to 5 amps per square foot.

7. Rinse in cold water.

8. Rinse in cold water.

9. Seal for 30 min. in 5% solution of potassium dichromate (by weight) in water at 200 + 205°F.

10. Rinse in hot water (180 - 190°F).

11. Dry in oven.

12. Remove cases from racks.

13. Strip racks (.38 lbs phosphoric acid per gal. water).

14. Rinse racks in cold water.

NOTE: Anodizing operation generates heat. Bath temperature is maintained at 70°F. by a refrigerating unit.

DISTRIBUTION

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Washington 25, D. C.

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Dayton 2, Ohio

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Arlington 12, Virginia

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AD-
R-1646

ACCESSION NO.

Small Arms Ammunition Division, Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa.

DEVELOPMENT OF CASE, CARTRIDGE, ALUMINUM, FAT49E4 by H. Burgess

Technical Report R-1646, July 1962, 100 pp including illustrations (OMS 4230.1.8841.20.00.02, 4230.1.8903.20.00.01, DA Project TS1-2, UNCLASSIFIED REPORT

This report covers the design, development, fabrication and evaluation of the 7.62mm aluminum cartridge case by the blank, cup and draw process. Initial development utilized regular brass case tooling with minor changes. Modification to the initial cartridge case design eliminated problems encountered during fabrication. Various firing casualties such as primer leaks, blown primers and gas eroded heads were encountered during testing in rifles and machine guns. Changes in heat treatment, the type of propellant and primer used and a closer control of the head area dimensions of the case resulted in the fabrication of a 7.62mm aluminum cartridge

UNCLASSIFIED

1. Cartridge Case, Aluminum
2. 7.62mm Cartridge Case

I. H. Burgess
II. OMS 4230.1.8841.20.00.02
4230.1.8903.20.00.01
III. DA Project TS1-2

DISTRIBUTION LIMITATIONS:
None, obtain copies from ASTIA.

UNCLASSIFIED

AD-
R-1646

ACCESSION NO.

Small Arms Ammunition Division, Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa.

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DISTRIBUTION LIMITATIONS:
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UNCLASSIFIED

AD-
R-1646

ACCESSION NO.

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DEVELOPMENT OF CASE, CARTRIDGE, ALUMINUM, FAT49E4 by H. Burgess

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This report covers the design, development, fabrication and evaluation of the 7.62mm aluminum cartridge case by the blank, cup and draw process. Initial development utilized regular brass case tooling with minor changes. Modification to the initial cartridge case design eliminated problems encountered during fabrication. Various firing casualties such as primer leaks, blown primers and gas eroded heads were encountered during testing in rifles and machine guns. Changes in heat treatment, the type of propellant and primer used and a closer control of the head area dimensions of the case resulted in the fabrication of a 7.62mm aluminum cartridge

UNCLASSIFIED

1. Cartridge Case, Aluminum
2. 7.62mm Cartridge Case

I. H. Burgess
II. OMS 4230.1.8841.20.00.02
4230.1.8903.20.00.01
III. DA Project TS1-2

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R-1646

ACCESSION NO.

Small Arms Ammunition Division, Research and Development Group, Pitman-Dunn Laboratories, Frankford Arsenal, Philadelphia 37, Pa.

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case acceptable at this stage of its development since it is almost completely free of defects. The case thus developed is identified as Case, Cartridge, 7.62mm, FAT49E4.

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