Attn: SPOTS

Project No. 4454(28-S6-064) 1st

C. B. Reg. No.
06-58-TA-OC

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ORDNANCE RESEARCH CENTER
ABERDEEN PROVING GROUND, MD.
25 August 1944

FIRST REPORT ON DEMONSTRATION OF THE LJUTIC SEMIAUTOMATIC RIFLE, CAL. .30

AND

EIGHTY-FIRST REPORT ON TESTS OF SEMIAUTOMATIC RIFLES

ORDNANCE PROGRAM NO. 4972

DATE OF TEST: 6 July 1944

Index to Report

Appendix

by

William S. Aumen, Jr.,
Assistant Engineer

FIRST REPORT ON DEMONSTRATION OF THE
LJUTIC SEMIAUTOMATIC RIFLE, Cal..30

AND

EIGHT-FIRST REPORT ON TESTS OF SEMIAUTOMATIC RIFLES

ORDNANCE PROGRAM NO. 4972

Project No. 4454

Pages 1 to 11 inclusive
then Photographs Nos:
A7407
A7408
A7409
A7410
A7411
A7412
A7413

5 Yellow
1 Brown
[illegible]

I. AUTHORITY FOR TEST:

A. Authority for demonstration firing of this weapon was contained in TAO V WAOC NR8 WD 102219Z July 1944, SPOTS COOPER.

B. This teletype superseded TAO V WAOB NR137 WD 071510Z July 1944, SPOTS MFH, which had originally requested the standard rifle test.

C. Copies of both teletypes are included as Appendix A of this report.

II. INTRODUCTION:

A. Discussion:

1. This is the first time that the Ljutic Semiautomatic Rifle has appeared at the Research Center. No information is available at this station concerning the history or development of the weapon.

B. Object of Demonstration:

1. The weapon was demonstrated by the designer to acquaint interested personnel with the principle of operation.

III. CONCLUSIONS:

Inasmuch as the firing was extremely limited and merely a demonstration of the principle of operation, no conclusions will be drawn.

IV. RECOMMENDATIONS:

None

V. DESCRIPTION OF MATERIAL:

A. Material that was demonstrated:

1 - Ljutic Semiautomatic Rifle, Cal. .30, No. 2. Also refer to Photographs Nos. A7407 to A7413, which are included as Appendix C.

1. The weapon demonstrated was a gas-operated, semiautomatic rifle, chambered for the Standard Service Cartridge, Cal. .30, M2.

2. The gas port was located approximately 11-1/8 inches to the rear of the muzzle. The gas followed an annular groove around the outside of the gas cylinder plug. It then entered the gas chamber through a port in the plug which was diametrically opposed to the gas port in the barrel. The gas impinged on the piston, which had a power stroke of approximately 5/8 inch. The piston in turn actuated the operating slide, which rotated and unlocked the bolt, which followed the normal cycle of operation.

The operating slide had an integral cover, designed to protect the action from entrance of foreign material, when the bolt was in the forward position. A hard rubber buffer was inserted at the rear of the receiver to cushion the shock of the bolt striking the rear of the receiver.

3. The bolt itself employed a spring loaded ejector and an inertia firing pin. The extractor was flat and locked the firing pin in the bolt. Premature firing, prior to complete bolt locking, was prevented by an arrangement similar to that employed on the U.S. Rifle, Cal. .30, M1.

4. The front sight was a ramp type, protected blade, with a fixed stacking swivel and bayonet lug integral with the sight assembly. The bayonet lug would not accept the standard bayonet. The shape of the assembly was such that a standard grenade launcher could not be attached to the weapon.

5. An aperture type rear sight was employed with provision for elevation and windage adjustments. When elevated, the sight staff moved upward out of the receiver, permitting cleaning of the rifle bore from the rear.

6. The trigger mechanism housing was integral with the receiver. An odd shaped wire spring acted as the hammer, trigger, and safety spring. A pivoted claw, actuated by the magazine follower, engaged the operating slide and locked the bolt in the rear position when the magazine was empty.

7. The receiver was fastened to the stock by means of a take-down screw, somewhat similar to that used on the Reising Submachine Gun.

8. Weight and dimensional data, obtained at the Research Center, are listed below.

Weight with empty magazine	9 pounds
Weight of empty magazine	3.39 ounces
Capacity of magazine	5 rounds
Type of operation	gas
Overall length	43-1/2 inches
Length of barrel	23-1/2 inches
Sight radius	31-5/16 inches
Type of sights	protected blade front, adjustable aperture rear

B. Other material, exclusive of the usual range facilities:

200 - Cartridge, Ball, Cal. .30, M2, Lot F.A. 3934

VI. DETAILS OF TEST:

A. Observers:

Colonel John W. Cave, Chief, Arms and Ammunition Division, Ordnance Research Center.
Lt. Col. C. R. Carr, Chief, Small Arms Section, Ordnance Research Center.
Major G. P. Grant, Asst. Chief, Small Arms Section, Ordnance Research Center.
Mr. W. S. Aumen, Jr., Small Arms Section, Ordnance Research Center.

B. Results of Demonstration:

1. Photographs were secured of the original gun brought to the Research Center by Mr. Ljutic. While dismantling the weapon for these photographs, he discovered that the hammer extension supports for the hammer pin were broken. A piece was also broken from the semiautomatic dog, consequently the gun could not be fired.

2. When Mr. Ljutic returned to the Research Center with the second gun he was supplied with ammunition and facilities to make any changes or alterations that he desired, in order to tune up the weapon. After firing 100 rounds, he announced that the weapon was in proper operating condition and that he was ready to demonstrate the gun to all interested parties. During this firing, no record was kept of gun function and replacement or alteration of gun components.

3. The weapon was not subjected to the two proof rounds required by the Ordnance Proof Manual because the inventor stated that the weapon was constructed of an inferior grade of steel and was not properly heat-treated. It was his desire to demonstrate the principle of operation.

4. Since the weapon had previously been fired approximately three hundred rounds, representatives of the Research Center agreed that the gun would be fired by the inventor, but not by Research Center personnel.

5. Personnel of the Arms and Ammunition Division were present while the inventor disassembled his gun and briefly explained the principles of operation. He then fired 100 rounds from the shoulder. The following malfunctions occurred during this firing:

5 - failures to feed.
1 - failure to extract.
1 - failure of the bolt to remain open after the last round.

6. The feed failures appeared to be due to the magazine, which was of flimsy construction. The failure of the bolt to remain open might also be attributed to the magazine, as the magazine follower actuated the bolt hold-back catch. The fired cases showed evidence of the chamber being large at the rear and tight at the forward end. This condition may have caused the extraction failure.

7. At the completion of the demonstration, Mr. Ljutic stated that he did not desire to submit his rifle, in its present condition, to the standard rifle test. He took his gun with him when he left the Research Center.

APPROVED:

G. G. Eddy,
Colonel, Ord. Dept.,
Director.

John W. Cave,
Colonel, Ord. Dept.,
Chief, Arms & Ammun. Div.

William S. Aumen, Jr.,
Assistant Engineer.

APPENDIX A

Teletypes of Authority

T41

TAO V WAOB NR137 WD

FROM STUDLER C OF ORD ASF WASHINGTON DC 071510Z JUL 44

TO DIRECTOR ORDNANCE RESEARCH CENTER ABERDEEN PROVING GROUND MD

GRNC

CONFIMING PHONECONV 5 JULY 44 BETWEEN COL R R STUDLER THIS OFFICE AND CAPT WILSON REQUEST LJUTIC RIFLE BE SUBJECTED TO STANDARD RIFLE TEST STARTING 6 JULY NO DEVIATIONS FROM USUAL PROCEDURE IN TEST OF SUBMITTED ITEMS ARE TO BE MADE END CITE SPOTS MFH

19232

T1O

TAO V WAOC NR8 WD

FROM STUDLER C OF ORD ASF WASHINGTON DC 102219Z JUL 44

TO DIRECTOR ORD RESEARCH CENTER

ABERDEEN PG ABERDEEN MD

GRNC

REOURTT 6 JULY 1944 MR A LJUTIC WILL DELIVER TO THE PROVING CENTER ON 11 JULY 1944 ONE COMPLETE GUN AND AUXILIARY PARTS REQUEST THAT INITIAL DIRECTIVE BE MODIFIED TO PERMIT MR LJUTIC TO DEMONSTRATE HIS GUN TO PROVING GROUND PERSONNEL AND DO SUCH FIRING AS HE DEAMS NECESSARY FOR TUNING UP PURPOSES SUCH FIRING SUBJECT TO RESEARCH CENTER SAFETY REGULATIONS FURTHER REQUESTS THAT MR LJUTIC BE PERMITTED TO WIND A NEW SPRING FOR HIS GUN SHOULD IT BE NECESSARY AT COMPLETION OF ABOVE MR LJUTIC WILL THEN EXPRESS HIS DESIRE AS TO SUBMITTING GUN TO STANDARD RIFLE TEST LESS ACCURACY FIRING OR TO PORTIONS OF STANDARD RIFLE TEST OR WITHDRAWAL OF GUN ABOVE IS CONFIRMATION OF PHONE CONV BETWEEN COLONEL STUDLER AND COLONEL CAVE THIS DATE END CITE SPOTS COOPER

110025Z

APPENDIX B

Firing Record No. S-42243

FORM A.P.G. 7

ABERDEEN PROVING GROUND, MARYLAND
FIRING RECORD

56-C-3

OBJECT OF FIRING: To demonstrate the operation of the Ljutic Semiautomatic Rifle, Cal. .30.

DATE OF FIRING 11 July 1944
PROVING CENTER F. R. No. S-42243
SHEET 1 OF 1
T. S. T. P.
O. C. M. ITEM
O. P. No. 4972
O. O. FILE)
A. P. G. FILE) *
W. O. No. 323-1

C. B. Reg. No.
06-64-TM-OC

Project No. 4454(28-S6-064) 1st

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RELATED F. R. NOS.		PREV. ROUNDS
FIRED FROM	Ljutic Semiautomatic Rifle, Cal. .30, No. 2	unknown
MOUNTED ON		
RECOIL MECHAN-ISM		

* TAO V WAOB NR137 WD 071510Z July 1944
TAO V WAOC NR8 WD 102219Z July 1944

AMMUNITION

Cartridge, Ball, Cal. .30, M2, Lot F.A. 3934

Preliminary Adjustments

Rd. Nos.	Function	Remarks
1-100	No records kept.	Gunner - Mr. Ljutic

Demonstration Firing

1-100	5 failures to feed. 1 failure to extract. 1 failure of bolt to remain open after last rd.	Empty cases indicate that chamber is large at rear and tight at front.

This Firing Record is Appendix B of the First Report on Demonstration of the Ljutic Semi-Automatic Rifle, Cal..30 and Eighty-First Report on Tests of Semi-Automatic Rifles, O.P. 4972.

APPROVED:

G. G. Eddy,
Colonel, Ord. Dept.,
Director.

John W. Cave,
Colonel, Ord. Dept.,
Chief, Arms & Ammun. Div.

William S. Aumen, Jr.,
Assistant Engineer.

APPENDIX C

A.P.G. Photographs Nos.

A7407
A7408
A7409
A7410
A7411
A7412
A7413