

REMINGTON ARMS COMPANY, INC.
Firearms Research Division

April 22, 1981

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Please look into the
*see ~~my~~ notes: ^{2 & 3} H. HENNINGS *for* *IPR**
FROM: F. L. SUPRY - A.J. LONG *A.J.L.*

File 703

M700 - 7mm Mauser
Trial & Pilot Evaluation
Completion of Test Summary

Date Started: 4- 8-81
Date Completed: 4-13-81
Work Order: G 0460

INTRODUCTION

The Research Test & Measurements Lab was requested to conduct a Trial & Pilot evaluation on eight (8) M700 Classic 7mm Mauser rifles received from Quality Control. These rifles were selected from a group size of thirty seven (37) rifles.

The four main test categories in the Trial & Pilot evaluation were as follows:

1. Visual Inspection - All rifles were reviewed for visual appearance as received from Quality Control.
2. Measurements - Headspace, trigger pull, firing pin indent, bolt opening force, safe on and off force, gun length, gun weight, and center of gravity measurements were taken on all eight rifles. Firing pin protrusion was taken on four of the eight rifles.
3. Accuracy - Four rifles were randomly selected to be tested for one hundred yard accuracy.
4. Field Function - A field cycle test consisting of varied bullet weights in Remington and competitive ammunition was conducted on four of the rifles.

J. H. Hennings

To: J.H.Hennings
From: F.L.Supry - A.J.Long
M700 - 7mm Mauser - Trial & Pilot Evaluation
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*meeting held -
following required -
minutes to be*

4-22-81
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TEST OBJECTIVE

written

To evaluate the 7mm Mauser (7x57) caliber in the M700 Classic rifle.

TEST FINDINGS

The eight rifle pilot line test on the M700 Classic in the 7mm Mauser (7x57) caliber was rejected in the following three categories:

1. Visual inspection
2. Measurements
3. Field function

The fourth category (accuracy) was found to be within Remington standards.

The remainder of this section will be separated into the four main categories (visual, measurements, accuracy and function).

1. Visual Inspection

The M700 Classic 7mm Mauser (7x57) was rejected by the visual inspection committee due to several items considered to be visually unsatisfactory. They were as follows:

- The checkering on the pistol grip, on the right side, was incomplete in all eight rifles.
- The polish at the muzzle end of the barrel was incomplete on all eight rifles.
- A burr was found on the receiver, at the primary extraction cam, on all eight rifles.
- Three of the rifles had heavy hammer marks on the barrels, left from the swaging operation.
- Six of the rifles showed some open grain on the stocks.
- For a visual inspection breakdown per rifle refer to Data Sheet #1.

*to standard
do not consider*

Call meeting - Review program Andy B. worked up, invite Tomi Capeletti - develop program to resolve problem - work with Ed on this.

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TEST FINDINGS Continued

2. Measurements

The preliminary measurements for headspace, firing pin indent, bolt opening force, safe on and off force, firing pin protrusion, gun length, gun weight and center of gravity were all found to be within Remington standards.

The M700 Classic in the 7mm Mauser (7x57) was rejected due to the trigger pull measurements not meeting Remington standards.

- a. Remington standards are 3 to 5 pounds for the trigger pull.
- b. The trigger pull on the test rifles ranged from 5.1 to 6.3 pounds.
- c. For preliminary measurement breakdown per rifle refer to Data Sheet #2.

3. Accuracy

All four of the test rifles that were selected for the 100 yard accuracy evaluation were found to be within Remington standards on the bore and groove dimensions.

- a. The Remington standard for the bore dimension is .277" to .278".
- b. The bore dimension on the four rifles tested ranged from .2774" to .2776".
- c. The Remington standard for the groove dimension is .2837" to .2842".
- d. The groove dimension on the four rifles tested ranged from .2840" to .2842".

The Remington standard for the 5-shot group size at 100 yards with the 175 gr. bullet is 3.5".

- a. The group size average in the four rifles tested ranged from 1.14" to 2.23".

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3. Accuracy Continued

There is no Remington standard for group size using the 140 gr. bullet; however, we selected the most accurate rifle (from the 100 yard accuracy with the 175 gr. bullet) and fired six 5-shot groups for information only.

- a. The six groups ranged in size from 1.38" to 2.90" (refer to Data Sheet #4).

For 100 yard accuracy test information breakdown per rifle refer to Data Sheet #3.

4. Field Function

A total of 100 rounds of Remington and competitive ammunition in varied bullet weights was fired thru each rifle in a field cycle test conducted at the Ilion Fish & Game Club.

The M700 Classic in the 7mm Mauser (7x57) was rejected due to the excessive malfunction rate on one of the four rifles used in the field cycle test.

- a. Gun #6311299 experienced 7 stem chamber malfunctions; an overall malfunction rate of 7%.
- b. Overall the four rifles experienced 10 stem chamber malfunctions; an overall malfunction rate of 2.5%.
- c. For malfunction breakdowns (malfunctions per rifle, malfunctions per ammunition, and malfunctions per shooter) refer to Data Sheets #5-#7.

A live round unloading test was conducted on all four rifles using R-140 PSP and R-175 PSP ammunition. The live unload was conducted at a slow pace, a medium pace, and a fast pace with the following results:

- a. There were no malfunctions unloading the R-140 PSP at any of the three speeds tried.
- b. There were no malfunctions unloading the R-175 PSP at the slow pace or the medium pace. At the fast pace one stem top chamber malfunction occurred on each of the following three rifles:
#6310550
#6311299
#6310648

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PROCEDURE

1. Conduct and record preliminary measurements on all eight M700 Classic 7mm Mauser (7x57) rifles received for Trial & Pilot evaluation. The rifles were as follows:

- | | | | |
|----|---------|----|---------|
| 1) | 6311638 | 5) | 6310550 |
| 2) | 6310502 | 6) | 6311395 |
| 3) | 6310518 | 7) | 6311299 |
| 4) | 6311400 | 8) | 6310648 |

2. A visual inspection committee consisting of A.Long, R.Murphy, H.Stagg, F.Supry and F.Martin inspected the 8 rifles and recorded their opinions.

3. Four of the rifles were randomly selected and sent to the Custom Shop for 100 yard accuracy testing.

a. Ammo codes used:

- | | | |
|-----------|---|-------------|
| R-175 PSP | - | J 09E D0008 |
| R-140 PSP | - | R 24H B3532 |

4. The other four rifles were used in a field cycle test consisting of the following Remington and competitive ammunition:

<u>Ammo.</u>	<u>Code</u>
R-140 PSP	J 24H B3532
R-175 PSP	J 09E D0008
W-175 PSP	14 RD 52
F-139 PSP	A 9030
F-175 PSP	A 9038

5. After the field test, P.E. & C. was notified that Research was going to reject the Trial & Pilot of the 7mm Mauser (7x57).

- a. Rifle #6311400 (with severe hammer marks on barrel) was turned over to J.P.Linde.
- b. Rifle #6311299 (with 7% malfunction rate) was turned over to J.W. Brooks for further evaluation.
- c. All rifles will be returned to Production.

FUTURE WORK

When Production produces enough rifles to select a new sample, another Trial & Pilot test will be conducted by Research.

FLS:AJL:T
Research Test Lab