

REMINGTON ARMS COMPANY, INC.

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Lab File

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

Ilion, New York
January 2, 1980

File

TO: C. B. WORKMAN

FROM: A. A. HUGICK *A.A. Hugick*

DATE: DECEMBER 27, 1979

SUBJECT: M/700 BDL - 7mm Mauser (7 x 57) TRIAL & PILOT

WORK REQUEST: 86264

INTRODUCTION:

The M/700 - 7mm Mauser (7 x 57) Trial and Pilot test consist of evaluating a special M/700 caliber addition considered during 1979 as a non-catalogue item. However, announcement was deferred and possible announcement rescheduling to be mid to late 1980. Items included in this Trial & Pilot test are: pressed long centerfire stocks, 7mm Mauser (7 x 57) caliber, and rivetless extractors with higher anti-rotation projection. The pressed long ADL stock was machined for acceptance of the BDL floor plate assembly.

TEST OBJECTIVE:

1. Conduct M/700 - 7mm Mauser Trial & Pilot.

TEST CONCLUSIONS:

1. Red dye techniques identified deep stock cracks in sectioned stocks not detectible to visual inspection. Pressed stocks with these deep cracks are not considered acceptable product. Expected performance is cracks to become visible with use and age plus allowing absorption of water through the broken surface seal.

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TEST CONCLUSIONS: (Cont'd)

2. Four rifles were jack function tested with an overall malfunction rate of 2.5%. Individual gun results are:

<u>Serial Number</u>	<u>Rds. fired</u>	<u>Malfunctions</u>
A6792659	80	0
A6795755	80	3
A6795254	80	3
A6796173	80	2
Totals	<u>320</u>	<u>8</u>

3. Six rifles were shoulder fired for function at the Lion Fish & Game Club rifle range with an overall malfunction rate of 5.0%. Individual gun results are:

<u>Serial Number</u>	<u>Rds. fired</u>	<u>Malfunctions</u>
A6796053	100	4
A6796222	100	3
A6796132	100	6
A6796175	100	2
A6795755	100	4
A6795254	100	11
Totals	<u>600</u>	<u>30</u>

Normal functional performance acceptance is 1% or better.

4. Two rifles were endurance tested in the plant gallery firing 1000 rounds of R7MS5 - 175 grain ammunition per rifle producing no malfunctions or no breakage in this rivetless extractor endurance test firing. Rivetless extractor inspection by design indicated no apparent wear or extractor looseness at test completion.
5. Four rifles were accuracy tested as received from production with telescopic sights in the Research 100 yard indoor range. Overall accuracy was 1.8 inches firing 3 x 5 shot groups per rifle. Individual rifle accuracy results are as follows:

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TEST CONCLUSIONS: (Cont'd)

5. (Cont'd)

<u>Serial Number</u>	<u>Group No.</u>	<u>Group Size</u>	<u>P. O. I.</u>
A6796053	1	1.0	1.4 R x 0.5 Lo
	2	2.5	0.3 L x 0.4 Lo
	3	1.7	1.0 L x 0.0 Lo
	Avg.	1.7	0.0 x 0.3 Lo
A6796222	1	1.4	0.7 R x 1.3 Hi
	2	2.3	0.1 R x 1.8 Hi
	3	2.1	0.5 R x 1.3 Hi
	Avg.	1.9	0.4 R x 1.5 Hi
A6796132	1	1.5	2.1 L x 2.6 Hi
	2	1.3	2.3 L x 2.7 Hi
	3	2.1	1.3 L x 3.1 Hi
	Avg.	1.6	1.9 L x 2.8 Hi
A6796175	1	2.2	3.7 L x 3.6 Lo
	2	2.4	5.7 L x 4.2 Lo
	3	1.3	6.8 L x 4.8 Lo
	Avg.	2.0	5.4 L x 4.2 Lo
Overall Avg.		1.8	1.7 L x 0.1 Lo

6. One rifle was also accuracy tested with available competitive 7mm Mauser ammunition. Accuracy result with A6796132 rifle are as follows:

<u>Ammunition</u>		<u>Group No.</u>	<u>Group Size</u>
Federal	139 Grain S.P.	1	2.75
		2	4.5
		3	1.3
		Avg.	2.45
Federal	175 Grain SP	1	1.40
		2	1.70
		3	2.0
		Avg.	1.7

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6. (Cont.d)

<u>Ammunition</u>	<u>Group No.</u>	<u>Group Size</u>
Winchester 175 Grain SP	1	2.2
	2	1.5
	3	3.5
	Avg.	<u>2.4</u>
IVI-Imperial 160 Grain KKSP	1	1.9
	2	2.3
	3	1.6
	Avg.	<u>1.9</u>

7. Two rifles were shot as received from production for Min. & Max. sight vertical adjustment. Results are as follows:

<u>Serial Number</u>	<u>Min.</u>	<u>Max.</u>
A6796222	12.0 HI	19.5 HI
A6796053	4.0 Lo	32.0 HI

TEST CONDITIONS - Stock Testing

- 1) Cold Test - 2 pressed stocks - 0° F - 20 Hrs.
- 2) Heat Test - 2 pressed stocks - 240° F - 20 Hrs.
- 3) Reversed Stocks in conditions 1 & 2 - 20 Hrs.
- 4) Exposed to Weather - 2 pressed - 2 sanded - Roof - 20 Hrs.
- 5) Red Dye Test - 3 pressed stocks (No rounds) - No visible cracks sectioned
- 6) Red Dye Test - 1 pressed stock - Function stock - 80 rds. fired
- 7) Water soak test - 4 hrs. one press stock - one sanded.

- No stocks were visually cracked at the start of the test.

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RESULTS:

- 1) Cold Test - Stock No. 1 - Rear web cracked 1/2 way thru (20 hrs.)
Stock No. 2 - No visual cracks (20 hrs.)
- 2) Heat Test - Stock No. 3 - 8" crack in bbl. bed (20 hrs.)
Stock No. 4 - no cracks (20 hrs.)
- 3) Cold to Heat - Stock No. 1 - Rear web 3/4" thru (20 hrs. Heat)
- Stock No. 2 - No visual cracks (20 hrs. Heat)
Heat to Cold - Stock No. 3 - Slight crack, rear web (20 hrs. cold)
Stock No. 4 - Rear web cracked clear thru, All web area behind recoil
lug cracked thru (20 hrs. cold)
- 4) Exposed to Weather - Stock 5 & 6 - Water was absorbed in checkering and around butt plate.
Cracks present at rear web area, and behind recoil lug.
36° - 40°F - light drizzle over night - 20 hrs. on roof.
Grip down No. 5 Grip up No. 6
Control Stocks - no visual cracks or water absorption.
- 5) Red Dye Test - Stock No. 7 - crack at rear web 90% thru. Front guard screw hole cracked
clear thru. Dye was absorbed in checkering areas.

Stock No. 8 - Recoil lug area cracked. Rear web area cracked 30%
Red dye absorbed at machine cuts.

Stock No. 10 - Cracked at rear web. Red dye absorbed at machine cuts.
- 6) Red Dye Test - Function stock - 80 Rds. No. 8A Stock
Rear web cracked
crack at recoil lug location
Dye absorption throughout stock.
- 7) Water soak test No. 9 stock - No problems with control stock.
1 hr. - water soak on checkering area.
2½ hrs. - water has absorbed around butt plate.
4 hrs. - Heavy bulge at butt plate area, and checkering areas.

SUMMATION OF TESTING

- 1) Stocks are poorly sealed (Open grain, checkering, machine cuts, butt plate)
- 2) Although the cracks are not visible, they are still present.
- 3) Heat cold, water and Weather affect the pressed stock. Areas that swelled last time
did not swell as much this time.

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SUMMATION OF TESTING (Cont'd)

4) Stocks

Lab recommendations -- (If the economics is there)

1. Press the stock prior to inletting -- the outer geometry pressed then inlet.
2. Seal by pulling a vacuum (such as powder metal).

AAHugick:bd
Measurement Lab
Lion Research Division
Attached

