

REMINGTON ARMS COMPANY, INC.

INTERDEPARTMENTAL CORRESPONDENCE

Remington

PETERS

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P. Nasypany

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RESEARCH TEST and MEASUREMENT REPORT - Report No. 821662

M/700 - .223 CAL., 24" LENGTH 12" TWIST NEW DESIGN BARREL EVALUATION.

Prepared by: R. Howe

Date Prepared: 1-17-83

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Foreman-Test Lab / Foreman-Measurement Lab

R.E. Nightingale
Signature Date

C.E. Ritchie,
Sr. Supervisor - Testing,
Meas. & Mech. Analysis Lab

C.E. Ritchie
Signature Date 1-25-83

TEST & MEASUREMENT LAB REPORT

REPORT NUMBER: 821662
REPORT TITLE: M/700 .223 Cal., 24" Length, 12" Twist New Design
Barrel Evaluation
MODEL(S): 700
GAUGE OR CALIBER: .223
DATE: 1-17-83
WORK ORDER NO.: C-5018-000
PART NAME: Barrel
DESIGNER/ENGINEER: P. Nasypany

TEST TYPE:

1. PHOTO LAB
2. STRENGTH TEST - NO. OF GUNS TESTED _____
3. FUNCTION TEST - NO. OF GUNS TESTED 6
4. ACCURACY TEST - NO. OF GUNS TESTED 4
5. MEASUREMENTS - TYPE: _____
6. ENVIRONMENTAL TEST
7. AMMUNITION TESTING & EVALUATION - TYPE: _____
8. VISUAL EVALUATION - _____ OUT OF _____ GUN SAMPLE
9. ENDURANCE - NO. OF GUNS TESTED: 6

NO. OF ROUNDS PER GUN: 80

TOTAL ROUNDS FIRED IN TEST: 480

AMMO TYPE: MAGS. _____; TARGET: _____

RIM FIRE _____ CENTER FIRE X

January 17, 1983

TO: J. H. HENNINGS

FROM: R. HOWE

REPORT TITLE: M/700 .223 CAL., 24" LENGTH, 12" TWIST NEW DESIGN BARREL
EVALUATION

ABSTRACT

On 6-21-82, six (6) M/700 .223 Cal. rifles with 24" Length, 12" Twist New Design Barrels were received from P. Nasypany, Current Products Design, to be evaluated for design acceptance by R. & D. Test Lab.

SCOPE OF TEST

To evaluate the function and accuracy of the new 24" length, 12" twist, .223 cal. M/700 barrel design.

TEST RESULTS

Of the six (6) M/700 test rifles, all were within present Remington Standards as to head space, firing pin indent and trigger pull. There is no present standard for Safe "On" - "Off" lb. forces. Field Function Tests resulted in an overall average malfunction rate of 0.96% for all six (6) rifles.

Of the four test rifles shot for accuracy, all were within the 2.2", 5 shot group Remington Standard.

See Appendix "A" Pages 1 to 3 for individual results.

REPORT TEXT

- A. Trigger Pull, Headspace, Firing Pin Indent, Safe "On" "Off", Gun Length, Weight & Accuracy Measurements were taken at the start of the test.

Present Remington Standards are:

1. Trigger Pull - 3.0 to 5.0 lbs.
2. Head Space - Min. + .009"
3. Firing Pin Indent. .018" to .026"
4. Safe "On" - "Off" Lb. Forces. - No present established Standard.
5. Accuracy - Three 5-Shot groups 55 HP Rem. in a 2.2" circle in any around the clock position from point of aim.

Of the six (6) M/700 test rifles, all were within the present Remington Standards as to items one through four above. With four of the six shot for accuracy also being within the 2.2" circle as in Item 5 above.

- B. Field Function Test.

Acceptable Standards are determined by percentage of malfunctions with severity of malfunctions being considered.

Of the six test rifles shot 80 rounds each, Rifle No. 1 had 4 malfunctions (all four were stem chamber high) and Rifle No. 2 had one stem chamber high for an average malfunction rate of 0.96% for a total 480 test rounds fired.

- C. Accuracy Test

Present Remington Standards for accuracy for M/700 .223 cal. are 3 - 5 shot groups within a 2.2" circle as stated in Column "A" Item 5 above.

Four of the six M/700 test rifles were shot for accuracy by Joe Raymond on the Plant 100 yard range (Rifle No.'s 1 - 2 - 3 and 6) using Remington 55 HP Code No. R-22K-D3432 ammo. with Gun No. 6 being reshot using hand loads of 26 gr. No. 498 and 52 gr. Remington Bullet. All groups shot were well within the present Remington Standard of 2.2".

For individual results of Report Text, Items A through C, refer to Appendix "A" Pages 1 to 3.

TEST PROCEDURE

A. Measurements

All measurements were taken in the R & D Test Lab using the following methods:

1. Trigger Pull:
Trigger Pull measurements were taken with a Chatillon Model IN-10 Pull Scale.
2. Head Space:
Head Space measurements were taken with .223 Cal. Head Space gauges ranging from Min. to Min. + .009".
3. Firing Pin Indent:
Firing Pin Indent measurements were taken using a Cal. .223 crusher holder, annealed copper crusher and No. 25 - 131 Starret Dial Gauge and Fixture.
4. Gun Weight:
Gun Weight Measurements were taken using a Triner No. 28474 lb. and oz. Balance Scale.
5. Gun Length:
Gun Length Measurements were taken using a standard 4' scale divided in 1/16" graduations.
6. Accuracy Measurements:
Accuracy Measurements were taken using 6" steel scale graduated in 1/50".

B. Field Function:

The Field Function Test was run at the Ilion Fish and Game Club's Rifle Range at 100 yards. The weather was clear and sunny, approximately 75°. It was a two-page Field Function Test allowing 80 rounds each of Remington 55 Gr. PSP, Remington 55 Gr. HP, and Remington 55 Gr. M.C., with 55 Gr. PSP repeated for last 20 rounds.

The round robin system was used in this test. Each shooter went to the line with 20 rounds, loaded the gun to its 5 shot capacity and shot 5 rounds Slow, 5 rounds Medium, 5 rounds Fast and 5 rounds any chosen speed feed. After each 20 rounds, the shooters changed guns until each gun was shot a total of 80 rounds.

NOTE: All six (6) shooters were on the firing line at the same time for each 20 round cycle.

All individual results in Appendix "A" Pages 1 to 3.

" APPENDIX " A "

Data Sheets

1-17-83

DESIGN BARREL EVALUATION

REPORT #821662

R. HOWE

"FIELD FUNCTION"

W. O. #C-5018-000

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GUN#	SER#	TYPE MALFUNCTION	1	2	3	4	5	6
			AMMO + # ROUNDS	AMMO + # ROUNDS	AMMO + # ROUNDS	AMMO + # ROUNDS	% MALFUNCTION	
			REM 55 PSP	REM 55 HP	REM 55 MC	REM 55 PSP	PER UNIT.	
1	#B 6292699		20	20	20	20	5%	
2	4 STEM CHAMBER		2 STEM HI		2 STEM HI			
3	HIGH							
4								
5								
6	#B 6294992		20	20	20	20	0.8%	
7	1 STEM CHAMBER					1 STEM HI		
8	HIGH							
9								
10	#B 6292213		20	20	20	20	OK	
11								
12	#B 6292687		20	20	20	20	OK	
13								
14	#B 6292830		20	20	20	20	OK	
15								
16	#B 6293468		20	20	20	20	OK	
17								
18								
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1-17-83

DESIGN BARREL EVALUATION

R. HOWE

"PRELIMINARY MEASUREMENTS"

W.O. #C-5018-000

GUN#	SER #	1		2		3		4		5		6	
		HEADSPACE	FIRING PIN	AVG. OF 3	AVG. OF 3	AVG. OF 3	AVG. OF 3	SAFE ON/OFF	GUN LENGTH	GUN WEIGHT			
		AFT. PROOF	INDENT"	LBS.	LBS.	LB FORCES	IN	LBS. OZ.					
1		MIN+				ON OFF							
2	1	B 6292699	.001	.022	4.75	6.0 4.3	43 1/2"	7 LBS 6 OZ					
3													
4	2	B 6294992	.002	.023	4.50	5.9 3.9	43 1/2"	7 LBS 6 OZ					
5													
6	3	B 6292213	.001	.022	4.75	4.9 3.2	43 1/2"	7 LBS 7 OZ					
7													
8	4	B 6292687	.002	.022	5.0	5.0 3.5	43 3/4"	7 LBS 7 OZ					
9													
10	5	B 6292830	.001	.022	5.0	6.0 4.0	43 3/4"	7 LBS 9 OZ					
11													
12	6	B 6293468	.001	.022	4.9	5.3 3.7	43 3/4"	7 LBS 8 OZ					
13													
14													
15													
16	PRESENT REM.												
17	STANDARD		MIN-MIN+	.018 TO .026	3.7 TO 5 LBS	NONE							
18			.009			ESTABLISHED							
19													
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1-17-83

DESIGN BARREL EVALUATION

R. HOWE

"ACCURACY TEST"

W.O. # C-5018-000

AMMO	REM 55 HP	5 SHOT	5 SHOT	5 SHOT	AVERAGE		
CODE -	R-22K D3432	GROUP #	GROUP #	GROUP #	MEASUREMENT		
GUN #	SER. #	1	2	3			
1	B 6292699						
2	GROUP	1.5"	1.55"	1.55"	1.53"		
3	HORIZ.	.75"	.6"	1.3"	.88"		
4	VERT.	1.55"	1.85"	.85"	1.41"		
6	B 6292213	1.3"	1.3"	1.3"	1.30"		
7	GROUP	.9"	.8"	1.1"	.93"		
8	HORIZ.	1.15"	1.05"	1.85"	1.35"		
9	VERT.						
6	B 6293468						
12	GROUP	1.4"	1.45"	1.0	1.28		
13	HORIZ.	.65"	1.4"	.95	1.0		
14	VERT.	1.4"	1.1"	.65	1.05		
2	B 6294992						
17	GROUP	1.25"	1.35	1.4	1.33		
18	HORIZ.	1.1"	1.25	1.35	1.23		
19	VERT.	1.2"	.85	.7	.91		
HAND LOAD TEST - 26 GR #498 + 52 GR. REM. BULLET							
		5 SHOT	5 SHOT	5 SHOT	5 SHOT		
		GROUP #1	GROUP #2	GROUP #3	GROUP #4	AVERAGE	
6	#B 6292213						
	GROUP	.8"	.25"	.45	.6	.65	
	HORIZ.	.8"	.5"	.45	.65	.60	
	VERT.	.3"	.65"	.65	.4	.50	
NOTE:							
ACCURACY SHOT BY JOE RAYMOND IN PLANT 100 YD RANGE.							
REM STANDARD - THREE 5 SHOT GROUPS 55 HP REM. IN A 2.2" CIRCLE IN ANY AROUND THE CLOCK POSITION FROM POINT OF AIM.							