

REMINGTON ARMS COMPANY, INC.

INTERDEPARTMENTAL CORRESPONDENCE

Remington
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Distribution: C. B. Workman
C. E. Ritchie
J. W. Brooks
J. P. Linda

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RESEARCH TEST and MEASUREMENT REPORT - Report No. 830423

M/700 MODIFIED TRIGGER CONNECTOR EVALUATION

Prepared by: C. E. Ritchie

Date Prepared: 2-12-83

Proofread and Cleared By:

J.H. Hennings, / R.E. Nightingale,
Foreman-Test Lab / Foreman-Measurement Lab

Signature Date

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

Signature Date

TEST & MEASUREMENT LAB REPORT

REPORT NUMBER: 830423
REPORT TITLE: M/700 MODIFIED TRIGGER CONNECTOR EVALUATION
MODEL(S): 700
GAUGE OR CALIBER: All (.308 Cal. Tested)
DATE: 2-11-83
WORK ORDER NO.: G0460-000 X
PART NAME: - Trigger Connector
DESIGNER/ENGINEER: J. W. Brooks

TEST TYPE:

1. PHOTO LAB
2. STRENGTH TEST - NO. OF GUNS TESTED _____
3. FUNCTION TEST - NO. OF GUNS TESTED 4
4. ACCURACY TEST - NO. OF GUNS TESTED _____
Trigger Fill
5. MEASUREMENTS - TYPE: Safe On-Off Forces
See Lift (Finish Test)
6. ENVIRONMENTAL TEST
7. AMMUNITION TESTING & EVALUATION - TYPE: _____
8. VISUAL EVALUATION - _____ OUT OF _____ GUN SAMPLE
9. ENDURANCE - NO. OF GUNS TESTED: 4
Dry Cycle Rounds = 25,000
NO. OF ROUNDS PER GUN: Live 100
Dry Cycle Total = 100,000
TOTAL ROUNDS FIRED IN TEST: 400

AMMO TYPE: MAGS. _____; TARGET: X

RIM FIRE _____ CENTER FIRE _____

REMINGTON ARMS CO., INC.
Firearms Research Division

Report No. 830423
Page 1

February 12, 1983

TO: C. B. WORKMAN
FROM: C. E. RITCHIE
REPORT TITLE: M/700 MODIFIED TRIGGER CONNECTOR EVALUATION

ABSTRACT

Recently, Production received M/700 Trigger Connectors from the vendor which were slightly (0.001" to 0.003") out of specification. Process Engineering, through J. W. Brooks, Supervisor Current Products Design, requested the Test Lab to determine whether this dimensional difference would adversely affect the safe operation of the Trigger Assembly and ultimately the M/700 rifle itself.

SCOPE OF TEST

To evaluate the out of specification M/700 Trigger Connector by testing 4 specially prepared M/700 rifles, 2 rifles with a minimum stack-up of dimensional tolerances and 2 with a maximum stack-up of dimensional tolerances.

(Refer to sketches in Appendix "A" Page 3 and 4.)

TEST RESULTS

All four (4) test rifles went through the dry cycle, live fire and drop test with no trigger related malfunctions.

(Refer to Appendix "A" Page 1 and 2 for individual results.)

REPORT TEXT

1. All four (4) test rifles reached 25,000 dry cycles with no trigger related malfunctions.
2. All four (4) test rifles were Jack Fired 100 live rounds using Remington 180 grain P.S.P. Cal. .308 ammo. with no trigger related malfunctions.
3. All four (4) rifles were pendulum drop tested, against both a neoprene and a hardwood backstop, at the three foot level in the following modes:

Muzzle First - with Safe "On" and with Safe "Off"

Butt First - " " " " " " "

Left Side - " " " " " " "

Right Side - " " " " " " "

There were no trigger related malfunctions (firing pin did not fall) in any of the test rifles during the drop test.

4. At finish of test the following measurements were taken: Trigger Pull, Safe "On-Off" and Sear Lift. Present Remington Specs. are:

Trigger Pull	-	3.0 to 5.0 lbs.
Safe "On - Off"	-	None Established
Sear Lift	-	.005" to .018"

NOTE: It was noted that the two min. condition test rifles had a higher reading on Trigger Pull, Safe "On - Off" and Sear Lift tests than the two max. condition rifles.

Refer to Appendix "A" for individual results.

TEST PROCEDURE

A. Measurements

Sear Lift was measured at the conclusion of dry cycle, live fire and drop tests.

B. Test Conditions

1. All four (4) test rifles were dry cycle tested on the 4 cock and fire dry cycle machines in the R & D Test Lab Dry Cycle Room.

All rifles were lubricated liberally with DuPont Teflon Wet Lubricant, in and around the Bolt Cocking Cam surface, Sear Safety Cam (top), and the Trigger Housing inspection hole every 5,000 cycles starting at 0 cycles.

2. After dry cycle testing, all 4 rifles were live round fired 100 rounds each with Remington 180 grain P.S.P. ammunition. All rifles were shot 20 rounds each, then allowed to cool/able to touch with the hand until all 100 rounds had been shot.
3. A drop test was then conducted on all four rifles at the 3 foot test height, on both hardwood and neoprene backstops from the muzzle, butt and both sides.
4. Sear Lift was then measured using the optical comparator in the R & D Model Shop.

C. Ammunition

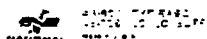
Remington 180 grain P.S.P. Code R308W3.

D. Rifles used in the test:

Remington M/700, 1983 Restyle, Cal. .308

Rifle No. 8	Serial No. B6440493	(Min. Condition)
Rifle No. 5	Serial No. B6438179	" "
Rifle No. 7	Serial No. B6438908	(Max Condition)
Rifle No.	Serial No. B6438658	" "

" A P P E N D I X " A "



Report No. 830423

M-700 Modified Trigger Connector

2-12-83

J. Baggett

Data Sheet No 1

	Gun No.	1	2	3	4	5	6
		B6440473	B6438179	B6438908	B6438658		
		Min.	Min	MAX	MAX	Test Results	
		Condition	Condition	Condition	Condition		
1	Dry Cycles	25000	25000	25000	25000	OK	
2							
3	Rounds Fired	100	100	100	100	OK	
4	Rem 180gr PSP						
5							
6	Drop Test						
7	Neoprene Pad						
8	Muzzle First						
9	Safe ON	OK	OK	OK	OK		
10	Safe OFF	OK	OK	OK	OK		
11	Butt First						
12	Safe ON	OK	OK	OK	OK		
13	Safe OFF	OK	OK	OK	OK		
14	Right Side						
15	Safe ON	OK	OK	OK	OK		
16	Safe OFF	OK	OK	OK	OK		
17	Left Side						
18	Safe ON	OK	OK	OK	OK		
19	Safe OFF	OK	OK	OK	OK		
20							
21	Drop Test						
22	Hardwood Pad						
23	Muzzle First						
24	Safe ON	OK	OK	OK	OK		
25	Safe OFF	OK	OK	OK	OK		
26	Butt First						
27	Safe ON	OK	OK	OK	OK		
28	Safe OFF	OK	OK	OK	OK		
29	Right Side						
30	Safe ON	OK	OK	OK	OK		
31	Safe OFF	OK	OK	OK	OK		
32	Left Side						
33	Safe ON	OK	OK	OK	OK		
34	Safe OFF	OK	OK	OK	OK		
35							
36	Seam Lift	.025"	.0265"	.0290"	.0260"		
37							
38	Remington						
39	Spec. Seam Lift .025 to .018						

NATIONAL INSTRUMENTS

REPORT #830423

M/700 MODIFIED TRIGGER CONNECTOR

2-12-83

R. HOWE

DATA SHEET No. 2

	GUN No.	1	2	3	4	5
		MIN	MIN	MAX	MAX	REMINGTON SIG.
		CONDITION	CONDITION	CONDITION	CONDITION	
1						
2	TRIGGER PULL					
3	POUND FORCES	5.9 LBS.	5.3 LBS.	4.9 LBS.	3.2 LBS.	3.0 TO 5.0 LBS.
4	(RESULT OF THREE					
5	MEASUREMENTS)					
6						
7	SAFE "ON"					
8	POUND FORCES	11.1 LBS.	16.5 LBS.	6.0 LBS.	6.2 LBS.	NONE ESTABLISHED
9	(RESULT OF THREE					
10	MEASUREMENTS)					
11						
12	SAFE "OFF"					
13	POUND FORCES	9.3 LBS.	8.8 LBS.	5.0 LBS.	8.0 LBS.	NONE ESTABLISHED
14	(RESULT OF THREE					
15	MEASUREMENTS)					
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CONDITION NO.		1	1	1	2	2	2	1	2	2	1	1	2
TRIGGER HOUSING ASSEMBLY NO.		1	2	3	4	5	6	7	8	9	10	11	12
	<u>Dim.</u>												
HOUSING	A	1.2395	1.2385	1.2395	1.241	1.2405	1.240	1.2385	1.2385	1.2405	1.240	1.238	1.2395
	B	.8395	.839	.8395	.841	.8415	.841	.840	.8405	.8405	.8385	.839	.842
GEAR	C	.1975- .198	.1975- .198	.1975- .198	.186	.1865	.1865	.1975	.1855	.1855	.1975	.1975- .198	.1865
	D	.8705- .871	.870- .8695	.8705- .871	.8655	.8655	.8645	.870- .8695	.863	.865	.871	.869- .8695	.8645
CONNECTOR	E	.215	.215	.215	.225	.225	.225	.215	.225	.225	.215	.215	.225
	F	.074	.072- .0715	.071- .0705	.071	.071	.071	.074	.071	.071	.074	.072- .0715	.071
TRIGGER	G	.972	.975	.975	.967	.967	.967	.9725	.967	.967	.9725	.975	.967
	H	.190	.190	.190	.186	.186	.186	.190	.186	.186	.190	.190	.186

B6438179

B6438908 B6440493

B6438658

WHS:js
2/18/83