

REMINGTON ARMS COMPANY, INC.
Firearms Research Division

Report No. 812441

September 10, 1982

TO:

J. H. Hanning
R. Williams

FROM:

REPORT TITLE:

NEW DESIGN M/700 TRIGGER/SEAR BLOCK EVALUATION

ABSTRACT:

A total of (5) M /700 Fire control assemblies with the New Design safety assemblies, were delivered to the Test Lab by Fred Martin for testing. This safety assembly blocks the trigger and the sear so that the firing pin won't fall when the trigger is held back while the safety switch is pushed from the safe to fire position. Both dry cycle and live fire endurance tests were used to test the assemblies. A M/700 fire control assembly (Current Production) was used as a control and (4) out of the (5) New Design assemblies were used in the test.

SCOPE OF TEST

To evaluate the functional performance of the New Design safety assembly, in the M/700 Rifle during lab testing.

TEST RESULTS

No functional problems arose during testing. Both the New Design safety and the control functioned normally. There was no significant change in the safe On/Off forces measured before, during and after testing, on all the assemblies, including the control.

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ORT TEXT

All four (4) new trigger assemblies were subjected to the following trick test:

- o Place Safety Switch in the Safe "On" position.
- o Close the bolt.
- o Put constant pressure on the trigger attempting to fire the rifle.
- o Push the Safety Switch from the "On" position to the "Off" position.
- o Does the firing pin fall?

All four (4) New Design Trigger Assemblies with the trigger /sear blocked passed this test. In all four (4) guns the firing pin did not fall.

NOTE: The measurements recorded for the Safe On/Off forces are questionable. There is no way to determine if they are within Remington Standards, because there are no standards written for these forces with this fire control assembly. The only Remington Standards written for Safe On/Off forces, pertain to the common fire control. That Standard is:

4 - 8 lbs. - One sharp click
Double click not allowed

The Safe On/Off forces measured in this test range from 5.25 lbs to 10.2 lbs. - almost a 5 lb. difference. (Refer to Appendix A, Data Sheets No. 1 - 5 for all Safe On/Off measurements).

TEST PROCEDUREA. MEASUREMENTS

The following measurements were taken on the five rifles used in this test:

- o Headspace
- o Firing Pin Indent
- o Trigger Pull
- o Sear Lift
- o Sear Engagement
- o Safe On/Off Forces

B. TEST CONDITIONS

1. After every 20 rounds fired, the safety was checked. This was done by holding the trigger and pushing the safety switch from safe to fire.
2. After 1,000 rds. of live fire all the rifles were cleaned and they were remeasured. (Jack Shooting).
3. The rifles were then subjected to Safe On/Off dry cycle. Each rifle was cycled for 2,500 cycles, with Safe On/Off measurements taken every 500 cycles and Sear Lift and Engagement at the 2500 cycle level.
4. The rifles were then live-fired to the 2,000 round level. (Jack Shooting) Measurements were

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TEST PROCEDURE - CONT'D.

5. The rifles were then subjected to another Safe On/Off dry cycle test. They were brought to the 5,000 cycle level. (2,500 additional cycles) Safe on/off measurements were taken every 500 cycles and sear lift and engagement wear measured at the 5,000 cycle level.

These same procedures were followed until live fire totaled 2,500 rounds per rifle and safe On/Off dry cycle totaled 7500 cycles per rifle.

C. AMMUNITION

Remington 80 grain Pointed Soft Point.

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10-400 CYCLES
10-700 20/30 SLUG

M-700 TRIGGER/SEAR BLOCK EVALUATION

Aug. 31, 1982

Report No. SP-244

No. 1000000000

P. Williams

1	2	3	4	5	6	7	8
M-700	6MM CAL *A6752973		Firing	SAFE (lb)	TRIGGER	SEAR	SEAR
	Sample No. 1	HEADSPACE	P.N. INCIDENT		PULL (lb)	LIFT	ENGAGEMENT
				ON OFF			
1							
2	START OF TEST	MIN. +.004"	.025"	6.2 6.0	4.0	.0105"	.035"
3							
4	LIVE FIRE						
5	after 1000 rds	MIN. +.004"	.025"	6.2 6.8	4.25		
6							
7	DRY CYCLE						
8	500 cyc			5.5 8.6			
9	1000 cyc			5.8 9.7			
10	1500 cyc			5.7 9.5			
11	2000 cyc			5.5 9.7			
12	2500 cyc			5.7 9.8		.0105"	.035"
13							
14	LIVE FIRE						
15	after 2000 rds	MIN. +.004"	.025"	5.6 7.3	4.0	.0165"	.027"
16							
17	DRY CYCLE						
18	3000 cyc			6.7 9.8			
19	3500 cyc			4.5 10.8			
20	4000 cyc			5.7 9.2			
21	4500 cyc			6.2 9.5			
22	5000 cyc			6.2 9.2		.0165"	.027"
23							
24							
25	LIVE FIRE						
26	after 2500 rds	MIN. +.004"	.025"	6.3 8.5	4.5		
27							
28	DRY CYCLE						
29	5500 cyc			6.2 10.5	4.8		
30	6000 cyc			6.2 10.0	4.6		
31	6500 cyc			6.2 8.8	4.6		
32	7000 cyc			6.0 7.8	4.8		
33	7500 cyc			4.2 9.8	4.6		
34							
35							
36							
37							
38							
39							
40							

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M-700 TRIGGER/SEAR BLOCK EVALUATION

Report No. 81246

Aug. 31, 1982

R. Williams

1	2	3	4	5	6
M-700	6MM cal. #A6744619	FIRING	SAFE	TRIGGER	SEAR
	Sample No. 2	HEADSPACE	PTN INDENT	PULL	1 FT
			(in lbs.)	(in lbs.)	ENGAGEMENT
			ON OFF		
1					
2	START OF TEST	Min. 0.03"	0.23"	6.5 5.3	4.3
3					
4	LIVE FIRE				
5	after 1000 cks	Min. 0.04"	0.24"	6.4 5.2	4.4
6					
7	DRY CYCLE				
8	500 cks			5.9 7.8	
9	1000 cks			6.0 6.7	
10	1500 cks			6.0 7.0	
11	2000 cks			5.5 6.7	
12	2500 cks			5.8 7.7	0.15
13					0.25
14	LIVE FIRE				
15	after 2000 cks	Min. 0.04"	0.23"	5.7 4.8	4.2
16					
17	DRY CYCLE				
18	3000 cks			6.5 8.0	
19	3500 cks			5.5 7.3	
20	4000 cks			5.8 7.2	
21	4500 cks			6.2 7.7	
22	5000 cks			7.3 8.0	0.18
23					0.25
24					
25	LIVE FIRE				
26	after 2500 cks	Min. 0.04"	0.23"	5.8 4.5	4.7
27					
28	DRY CYCLE				
29	5500 cks			7.0 9.5	4.8
30	6000 cks			6.7 8.7	4.5
31	6500 cks			6.7 7.8	4.5
32	7000 cks			7.2 7.8	4.3
33	7500 cks			6.6 8.5	4.5
34					
35					
36					
37					
38					
39					
40					

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M-700 TRIGGER / SEAR BLOCK EVALUATION

No. 3

Aug 31, 1982

R. Williams

1	2	3	4	5	6	7	8
M-700	6MM mil #A6749915	HEADSPACE	FIRING	SAFE	TRIGGER	SEAR	SEAR
	Sample No. 3		PEN INDENT	(inches)	PULL (lb)	LTET	ENGAGEMENT
				ON OFF			
1							
2	START OF TEST	Min. H. 004"	.025"	9.1 6.4	4.7	.015"	.025"
3							
4	LIVE FIRE						
5	after 1000 cys	Min. H. 004"	.026"	9.7 9.7	4.1		
6							
7	DRY CYCLE						
8	500 cys			8.2 6.9			
9	1000 cys			8.3 7.0			
10	1500 cys			8.8 6.3			
11	2000 cys			9.2 7.0			
12	2500 cys			9.8 6.0		.012"	.032"
13							
14	LIVE FIRE						
15	after 2000 cys	Min. H. 005"	.026"	10.2 8.2		.013"	.033"
16							
17	DRY CYCLE						
18	3000 cys			8.5 8.5			
19	3500 cys			9.2 7.2			
20	4000 cys			9.2 9.0			
21	4500 cys			8.7 9.7			
22	5000 cys			9.5 7.2		.015"	.032"
23							
24							
25	LIVE FIRE						
26	after 7500 cys	Min. H. 005"	.026"	9.8 5.2			
27							
28	DRY CYCLE						
29	5500 cys			9.3 8.3			
30	6000 cys			9.2 8.8			
31	6500 cys			9.7 9.8			
32	7000 cys			8.5 12.0			
33	7500 cys			9.5 12.0			
34							
35							
36							
37							
38							
39							
40							

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Aug 31, 1982

M-700 TRIGGER / SEAR BLOCK EVALUATION

Report No. 8124

R. Williams

1	2	3	4	5	6
M-700	6MM CAL #6745544	FIRING	SAFE (lbs)	TRIGGER	SEAR
	Sample No. 4	HEADSPACE	PIN TIME	PULL (lbs)	LIFT
			ON OFF		ENGAGEMENT
1					
2	START OF TEST	MIN+002	022	83 5.4	38 018
3					
4	LIVE FIRE				
5	after 1000 rds	MIN+002	022	68 5.2	40
6					
7	DRY CYCLE				
8	500 cyc			77 7.7	
9	1000 cyc			78 7.5	
10	1500 cyc			68 7.3	
11	2000 cyc			74 7.2	
12	2500 cyc			72 7.7	017 035
13					
14	LIVE FIRE				
15	after 2,000 rds	MIN+003	022	73 4.5	38 0158 035
16					
17	DRY CYCLE				
18	3000 cyc			67 8.7	
19	3500 cyc			75 7.7	
20	4000 cyc			77 6.7	
21	4500 cyc			75 7.7	
22	5000 cyc			77 6.8	017 035
23					
24					
25	LIVE FIRE				
26	after 7500 rds	MIN+003	022	88 4.3	43
27					
28	DRY CYCLE				
29	5500 cyc			82 9.0	45
30	6000 cyc			75 9.0	41
31	6500 cyc			78 9.3	42
32	7000 cyc			83 9.2	43
33	7500 cyc			87 8.3	43
34					
35					
36					
37					
38					
39					
40					

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M-700 TRIGGER / SEAR BLOCK EVALUATION

Report No. 82344

No. 5

R. E. Williams

Aug 31, 1982

	M-700	AMMUNITION	HEADSPACE	PEN INDENT	SAFE (lbs)		TRIGGER	SEAR	SEAR
					ON	OFF	PULL (lbs)	LIFT	ENGAGEMENT
1		Sample No. 5							
2		CONTROL GUN							
3		START OF TEST	Mint 003	.025	5.2	5.2	4.2	.019	.020
4		LIVE FIRE							
5		after 1,000 rds	Mint 003	.025	5.5	5.2	4.0		
6		DRY CYCLE							
7		500 cyc			6.3	7.6			
8		1000 cyc			5.6	8.3			
9		1500 cyc			5.8	7.8			
10		2000 cyc			6.1	8.5			
11		2500 cyc			5.1	8.3		.021	.0205
12		LIVE FIRE							
13		after 2,000 rds	Mint 003	.025	5.5	5.1	4.5	.020	.020
14		DRY CYCLE							
15		3000 cyc			6.6	8.1			
16		3500 cyc			6.8	8.1			
17		4000 cyc			6.1	7.6			
18		4500 cyc			6.1	7.3			
19		5000 cyc			6.0	6.5		.020	.020
20		LIVE FIRE							
21		after 2,500 rds	Mint 003	.025	5.1	4.8	5.1		
22		DRY CYCLE							
23		5500 cyc			6.1	8.0	4.7		
24		6000 cyc			6.1	8.0	4.6		
25		6500 cyc			7.0	8.5	4.6		
26		7000 cyc			6.8	8.1	4.7		
27		7500 cyc			6.3	7.6	4.8		
28									
29									
30									
31									
32									
33									
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35									
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CHRONOLOGICAL RECORD OF TESTING

	MODEL & DESCRIPTION	700 ADL Trigger/Scar Block eval.	
	CALIBER OR GAUGE	6 MM	
DATE	TEST	TESTER	PAGE NO.
12/82	Preliminary Measurement Trigger Pull, F.P. Indent Scar lift, Scar Engagement, Safe Off & ON Forces Head Space		
12-82	Fire 1,000 rounds per Rifle		
12-82	Clean & inspect.		
4-82	Fire another 1,000 rounds per Rifle check safety on-off after every 20 rounds Gun #1 A6752973 extractor failed 1,660 rounds Operate and try Safety after every 20 Round.		
11-82	Fire - another 500 Rounds and 2,500 dry cycle, take safe on and off and trigger pull Check safety on-off after 20 rounds Total rounds fired per gun 2,500 Total dry cycle 7,500 per gun. 11/11		
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