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RESEARCH TEST and MEASUREMENT REPORT - Report No. 830941

M/SEVEN LWT. PENDULUM DROP TEST TO EVALUATE NEW TRIGGER DESIGN.

Prepared by: R. Howe

Date Prepared: 4-6-83

Reviewed and Cleared By:

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

[Signature]  
Signature

4-25-83  
Date

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

[Signature]  
Signature

4/25/83  
Date

TEST & MEASUREMENT LAB REPORT

REPORT NUMBER: 830941  
REPORT TITLE: M/Seven LWT. Pendulum Drop Test To Evaluate New Trigger Design  
MODEL(S): M/Seven LWT.  
GAUGE OR CALIBER: .243  
DATE: 4-6-83  
WORK ORDER NO.: C-1809-000  
PART NAME: Trigger  
DESIGNER/ENGINEER: D. Bullis

TEST TYPE:

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

NO. OF ROUNDS PER GUN: \_\_\_\_\_

TOTAL ROUNDS FIRED IN TEST: \_\_\_\_\_

AMMO TYPE: MAGS. \_\_\_\_\_; TARGET: \_\_\_\_\_

RIM FIRE \_\_\_\_\_ CENTER FIRE \_\_\_\_\_

April 6, 1983

TO: C. E. RITCHIE  
FROM: R. W. HOWE  
REPORT TITLE: M/SEVEN LWT PENDULUM DROP TEST TO EVALUATE NEW DESIGN TRIGGER .

ABSTRACT

On April 4, 1983, a request was received to test three (3) M/Seven LWT. rifles. Two with New Style Trigger, one with the Old Style Trigger, and also one M/700 with old style trigger. D. Bullis, Current Firearms Design, requested the Test Lab to do a Pendulum Drop Test on these four rifles. To evaluate the Jar-Off resistance of the Fire Control Assembly.

SCOPE OF TEST

To evaluate and compare the Jar Off resistance of the Fire Control Assembly at a 3' drop height against a hardwood back stop.

TEST RESULTS

Some Jar -Offs did occur in the top and bottom side modes at various heights as described in Result Sheet Appendix "A".

REPORT TEXT

1. Trigger Pull and Sear Engagement was preset at minimum present Remington Specs.

Present Remington Specs. are:

Trigger Pull Lbs.	3.0 to 5.0 lbs.
Trigger Sear Eng.	.015 to .020

2. The four rifles were drop tested at the 3' drop height against a hardwood backstop in the following modes:

Muzzle First W/Safe in "On" & "Off" positions

Butt First W/Safe in "On" & "Off" positions

Right Side W/Safe in "On" & "Off" positions

Left Side W/Safe in "On" & "Off" positions

Top Side W/Safe in "On" & "Off" positions

Bottom Side W/Safe in "On" & "Off" positions

Results in Appendix "A".

Note: During drop test, some Jar-Off did occur in the top and bottom side modes so it was decided to drop these guns at various other levels to determine what height the Jar-Off would occur. Other drop levels and results are recorded in Appendix "A".

3. After the first drop test was completed, all four (4) rifles were set at the minimum (3.0lb.) trigger pull and re-dropped in all test modes.

Also, one M/700 rifle from Test Report No. 820391 was added to this test. This rifle contained a new design trigger spring and screw as per Drawing Nos.:

Trigger Spring Dwg. No. SK A-3687

Trigger Screw Dwg. No. SK B-3688

Results in Appendix "A".

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TEST PROCEDURE

A. Measurements

Trigger Pull was taken at the start of each test.

Sear Engagement was taken at the start of each test.

Test Conditions

1. Trigger pull forces were taken on all test guns using a Chatillon Model IN-10 Spring Pull Scale (See Appendix "A".)
2. Sear Engagement was set on productions Optical Comparator in M/ 700 final assembly area. (See Appendix "A".)
3. The Pendulum Drop Test was conducted on all test rifles at the 3' and the various other drop levels against a hardwood backstop from the muzzle, butt, both sides, top and bottom. (See Appendix "A".)

Rifles Used in Test

M/Seven - Serial No. 7601285, Serial No. 7601292, Serial No. 7601289

M/700 - Serial No. A6351001, Serial No. B6341922

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

M/7 NEW STYLE TRIGGER EVALUATION

4/5/83  
#830941

DROP/JAR-OFF TEST ON HARDWOOD SURFACE FROM 3' DROP EVALUATION	TEST #1				TEST #2			
	M/7 New Style Trigger	M/7 New Style Trigger	M/7 Old Style Trigger	M/700 Old Style Trigger	M/7	M/7	M/7	M/700
Serial #	#7601285	#7601292	#7601289	#A6351001	#7601285	#7601292	#7601289	#16351001
SAFE POSITION	On Off	On Off	On Off	On Off	On Off	On Off	On Off	On Off
TRIGGER PULL (Lbs.) Avg.	3.5 lbs.	3.16.	4.75lb.	5.75lb.	3.01b.	3.01b.	3.01b.	3.01b.
SEAR ENGAGEMENT	.015"	.015"	.015"	.015"	.015"	.015"	.015"	.015"
MUZZLE FIRST	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok
BUTT FIRST	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok
RIGHT SIDE	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok
LEFT SIDE	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok
BOTTOM SIDE	12"	- Ok	- Ok	- Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok
	18"	- 3 J/O4	- 1 J/O4	- Ok	Ok 1 J/O4	Ok 3 J/O4	Ok 2 J/O4	Ok 4 J/O4
	24"	- 4 J/O4	- 2 J/O4	- 1 J/O4	Ok 2 J/O4	Ok 4 J/O4	Ok 4 J/O4	Ok 4 J/O4
	36"	Ok 4 J/O4	Ok 4 J/O4	Ok 2 J/O4	Ok J/O	Ok J/O	Ok J/O	Ok J/O
TOP SIDE	12"							Ok Ok
	18"							Ok Ok
	24"							Ok Ok
	36"	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok Ok	Ok J/O

NOTE: J/O means - Jar-Off (i.e. 3 J/O 4 means 3 Jar-Offs out of 4 tries)

CER:chier:js  
4/10/83

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