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RESEARCH TEST and MEASUREMENT REPORT - Report No. 840171

M/700 TAUMEL ORBITAL RIVETED TRIGGER HOUSING
ASSEMBLY EVALUATION

Prepared by: R.W. HOWE

Date Prepared: 1/16/84

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Signature Date

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C.E. Ritchie 2/1/84
Signature Date

TEST & MEASUREMENT LAB REPORT

REPORT NUMBER: 840171

REPORT TITLE: M/700 TAUMEL ORBITAL RIVETED TRIGGER HOUSING ASSEMBLY EVAL.

MODEL(S): 700

GAUGE OR CALIBER: 30-06

DATE: 1/16/84

WORK ORDER NO.: R-1520-000

PART NAME: TRIGGER HOUSING ASSEMBLY

DESIGNER/ENGINEER: S.G. NAROTSKY

TEST TYPE:

1. PHOTO LAB
2. STRENGTH TEST-NO. OF GUNS TESTED 7
3. FUNCTION TEST-NO. OF GUNS TESTED 7
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: _____
NO. OF ROUNDS PER GUN 40
TOTAL ROUNDS FIRED IN TEST 280
AMMO TYPE: MAGS. _____ TARGET: _____
RIM FIRE _____ CENTERFIRE X
10. Dry Cycle Test
50,000 Cycles Each

January 16, 1984

TO: R.E. NIGHTINGALE
FROM: R.W. HOWE
REPORT TITLE: M/700 TAUMEL ORBITAL RIVETED TRIGGER
HOUSING ASSEMBLY EVALUATION

ABSTRACT

Recently R & D Test Lab received Seven M/700 Trigger Housing Assemblies riveted using a Taumel Orbital Riveter. (Instead of with the present Denison Press now used on Production) Barreled actions were chambered in Cal. 30-06.

S.G. Narotsky, Engineer, Firearms Process Research, requested the Test Lab evaluate the above new parts by dry cycle, pendulum drop testing and live round firing.

SCOPE OF TEST

To determine if the above new parts, riveted using a Taumel Orbital Riveter (as is proposed for the flexible assembly system) will perform as well as or better than the present production parts off the Denison Press.

TEST RESULTS

1. The seven test vehicles were measured for sear lift, sear engagement, and trigger pull at the beginning and at the end of the test.
Fire Control Assemblies #1 and #7 were found to be out of Remington specs for sear engagement in both instances.
2. All seven rifles were live round jack fired 20 rounds each. Both before and after dry cycle testing with no malfunctions.
3. All seven rifles reached 50,000 dry cycles each without any fire control related malfunctions.
4. During the four foot pendulum drop tests some "Jar-Off" did occur in the top and bottom drop modes.

There was no apparent loosening of the trigger housing rivets during the entire test. All individual results can be found in Appendix "A" Data Sheets of this report.

REPORT TEXT

1. The seven rifles were measured for sear lift, sear engagement, and trigger pull.
2. All seven were then jack fired 20 live rounds each.
3. All were then pendulum drop tested against a hardwood backstop at the four foot level.
4. Then each was dry cycled to 50,000 cycles.
5. After dry cycle testing all were again fired 20 live rounds each.
6. The seven were then redrop tested at the four foot level.
7. Sear lift, sear engagement and trigger pull were remeasured at the end of the test.

Individual results in Appendix "A" Data Sheets.

TEST PROCEDURE

A. Measurements

1. Sear Lift and Sear Engagement .000".
2. Trigger Pull - lbs.

B. Test Conditions

1. The seven test vehicles were assembled in 30-06 Cal. barreled actions and taken to the R & D Model Shop to measure sear lift and engagement on the optical comparator and trigger pull lbs. with a chatillon Model In-10 pull scale.
2. The barreled actions were then assembled into R & D Test Lab M/700 BDL Stocks and jackfired 20 live rounds each of Federal 185 gr. P.S.P. Ammo in the R & D Test Lab shooting room.

TEST PROCEDURE - Contd.

B. Test Conditions

3. A four foot Pendulum Drop Test was then conducted on all seven rifles using R & D Test Lab facilities. This test was against a hardwood backstop only in the following six modes and in both "SAFE"ON" & "SAFE"OFF positions: 1. Muzzle first, 2. Butt first, 3. Left side, 4. Right side, 5. Top side, and 6. Bottom side.
4. All seven were then dry cycled to 50,000 cycles each. Four at a time on the four bolt action cock and fire dry cycle machines in the R & D Test Lab Dry Cycle Room. Each rifle was lubed liberally every 2,000 to 3,000 cycles with "DuPont Teflon Wet" in and around the bolt cocking cam surface, sear safety cam (top) and trigger housing inspection hole.

All were checked to rivet tightness at the 25,000 and 50,000 dry cycle level.

5. After dry cycle testing all rifles were again live round jack fired using the same ammo and procedure as in Item #2 above.
6. The seven were then re-pendulum Drop Tested as in Item #3 above.
7. At the end of the test all seven were rechecked for sear lift, sear engagement and trigger pull by the same method as in Item #1 above.

C. Rifles used in Test

<u>Trigger Housing No.</u>	<u>Rifle Serial No.</u>
1	B-6519986
2	B-6520570
3	B-6520704
4	B-6518850
5	B-6518869
6	B-6520558
7	B-6519485

Report #840171

A P P E N D I X "A"

DATA SHEETS

REPORT TITLE: M1700 TAUHML ORBITAL RIVATED TRIGGER HOUSING ASSEMBLY EVAL.
4' PENDULUM DROP TEST (HARD WOOD BACK STOP) RESULTS
BEFORE DRY CYCLE TEST

	MODE →	MUZZLE	BUTT	TOP	BOTTOM	LEFT	RIGHT
	SAFE POSITION	FIRST	FIRST	SIDE	SIDE	SIDE	SIDE
RUN#	S-SAFE FIRE	S / F	S / F	S / F	S / F	S / F	S / F
1	SER# B6519986	OK OK	OK OK	OK JO	OK OK	OK OK	OK OK
2	SER# B6520570	OK OK	OK OK	OK JO	OK OK	OK OK	OK OK
3	SER# B6520704	OK OK	OK OK	OK OK	OK OK	OK OK	OK OK
4	SER# B6518850	OK OK	OK OK	OK JO	OK OK	OK OK	OK OK
5	SER# B6518869	OK OK	OK OK	OK OK	OK OK	OK OK	OK OK
6	SER# B6520558	OK OK	OK OK	OK JO	OK OK	OK OK	OK OK
7	SER# B6519485	OK OK	OK OK	OK OK	OK OK	OK OK	OK OK
"AFTER DRY CYCLE TEST"							
1		OK OK	OK OK	OK OK	OK OK	OK OK	OK OK
2		OK OK	OK OK	OK JO	OK OK	OK OK	OK OK
3		OK OK	OK OK	OK OK	OK JO	OK OK	OK OK
4		OK OK	OK OK	OK JO	OK OK	OK OK	OK OK
5		OK OK	OK OK	OK OK	OK OK	OK OK	OK OK
6		OK OK	OK OK	OK OK	OK JO	OK OK	OK OK
7		OK OK	OK OK	OK JO	OK OK	OK OK	OK OK
"JO = JAR OFF"							

REPORT TITLE: M700 TAMPAL ORBITAL RIVETED TRIGGER HOUSING ASSEMBLY EVAL.
OPTICAL COMPARATOR MEASUREMENTS RESULTS .000"
"START OF TEST"

GUN#	SERIAL NO.	SEAR	SEAR	TRIGGER	
		ENGAGEMENT	LIFT	PULL LBS.	
1					
2	1 B 6519986	.0225"	.0115"	3.50	
3					
4	2 B 6520570	.0185"	.0085"	4.75	
5					
6	3 B 6520704	.0175"	.010"	4.25	
7					
8	4 B 6518850	.0195"	.011"	4.50	
9					
10	5 B 6518869	.020"	.013"	4.0	
11					
12	6 B 6520558	.0175"	.011"	5.0	
13					
14	7 B 6519485	.0235"	.013"	4.50	
15					
16		"END OF TEST"			
17	1	.022"	.011"	3.50	
18					
19	2	.019"	.0095"	4.75	
20					
21	3	.017"	.0105"	4.50	
22					
23	4	.020"	.011"	4.0	
24					
25	5	.0205"	.0135"	4.50	
26					
27	6	.019"	.011"	4.75	
28					
29	7	.024"	.0125"	4.50	
30					
31					
32	PRESENT REMINGTON STANDARDS - SEAR ENGAGEMENT				.015" TO .025"
33	SEAR LIFT				.005" TO .015"
34	TRIGGER PULL				3.0 TO 5.0 LB
35					
36	(TRIGGER PULL IS RESULT OF 3 MEAS.)				
37					
38					
39					
40					