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RESEARCH TEST and MEASUREMENT REPORT - Report No. 820391

TEST TITLE:
M/700 NEW DESIGN TRIGGER SCREW & SPRING EVALUATION

Prepared by: R. W. HOWE

Date Prepared: 4-8-83

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

Signature _____ Date _____

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

Signature _____ Date _____

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TEST & MEASUREMENT LAB REPORT

REPORT NUMBER: 820391

REPORT TITLE: m/700 NEW DESIGN TRIGGER SCREW + SPRING EVALUATION.

MODEL(S): 700

GAUGE OR CALIBER:

DATE: 4-8-83

WORK ORDER NO.: C-1802-000

PART NAME: TRIGGER SCREW + SPRING

DESIGNER/ENGINEER: T. J. PLUNKETT

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 _____
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
 DRY CYCLE
 NO. OF ROUNDS PER GUN: 15,000
 DRY CYCLE
 TOTAL ROUNDS ~~TESTED~~ IN TEST: 60,000

 AMMO TYPE: MAGS: _____; TARGET: _____

RIM FIRE _____ CENTER FIRE _____

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APRIL 8 1983

PAGE #1

TO C.E. RITCHIE
FROM R.W. HOWE

TEST TITLE: M/700 NEW DESIGN TRIGGER SCREW & SPRING EVALUATION.

ABSTRACT:

RECENTLY R+D TEST LAB RECEIVED FOUR M/700 TRIGGER HOUSING ASSEMBLIES, CONTAINING NEW DESIGN TRIGGER SCREWS (AS PER. DRAWING # SK-B-3688) AND TRIGGER SPRINGS (AS PER. DRAWING # SK-A-3687). PROCESS ENGINEERING THROUGH T. J. PLUNKETT, ENGINEER CURRENT PRODUCTS DESIGN, REQUESTED THE TEST LAB EVALUATE THE ABOVE NEW DESIGN PARTS BY DRY-CYCLE AND PENDULUM DROP TESTING.

SCOPE OF TEST:

TO DETERMINE BY DRY-CYCLE AND PENDULUM DROP TESTING IF THE ABOVE NEW PARTS WILL CAUSE TRIGGER PULL CHANGES AND IF REDESIGNED TRIGGER SCREW AND SPRING WILL SET DURING TEST.

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TEST RESULTS:

1. TRIGGER PULL POUND FORCES DID RAISE DURING DRY-CYCLE TEST BUT RETURNED TO ACCEPTABLE LEVELS WHEN LUBRICATED WITH TEFLON WET LUBE.
- . DURING THE PENDULUM DROP TEST SOME JAR-OFF DID OCCUR IN THE "TOP" AND "BOTTOM" DROP MODES.

INDIVIDUAL RESULTS IN APPENDIX "A"

REPORT TEXT:

1. TRIGGER PULL, SEAR ENGAGEMENT AND OVER TRAVEL WERE SET TO PRESENT REMINGTON SPECS,

PRESENT REMINGTON SPECS ARE:

TRIGGER PULL - 3.0 TO 5.0 LBS.

ENGAGEMENT - .015" TO .020"

OVER TRAVEL -

2. ALL FOUR TEST VEHICLES WERE PLACED IN R+D TEST LAB. M/700 RIFLES.

3. TRIGGER PULL LB. FORCES WERE TAKEN AND RECORDED ON ALL FOUR RIFLES. PRESENT REMINGTON SPECS, IN ITEM ONE ABOVE.

4. THE FOUR RIFLES WERE DRY-CYCLED TO 15,000 CYCLES EACH WITH TRIGGER PULL FORCES RECORDED AT - 0 - 300 - 600 - 1,000 CYCLES AND EVERY 1,000 CYCLES THERE AFTER.

NOTE: ALTHOUGH THE WORK REQUEST CALLED FOR NO ADJUSTMENTS OR LUBRICATION DURING THIS TEST IT WAS DECIDED BY J. W. BROOKS, SUPERVISOR CURRENT PRODUCTS DESIGN, THAT "TEFLON WET" SHOULD BE APPLIED WHEN IT BECAME APPARENT THAT TRIGGER PULL FORCES WERE RAISING TO UNACCEPTABLE LEVELS, DURING DRY-CYCLE TEST, DUE TO LACK OF LUBRICATION.

5. THE FOUR RIFLES WERE THEN PENDULUM DROP TESTED AGAINST BOTH A NEOPRENE AND A HARD-WOOD BACK STOP. AT THE 2' - 4' AND 6' LEVELS IN THE FOLLOWING MODES.

REPORT TEXT, CONT.

PAGE #3

MUZZLE FIRST	WITH SAFE "ON"	AND WITH SAFE "OFF"
BUTT "	" "	" "
LEFT SIDE	" "	" "
RIGHT "	" "	" "
TOP "	" "	" "
BOTTOM "	" "	" "

NOTE: AFTER COMPLETION OF THE ABOVE DROP TEST IT WAS DECIDED TO SET RIFLE #6 TO THE MIN. TRIGGER PULL (3.0 LBS) AND SEAR ENGAGEMENT (.015") SPECS. AND REDROP AT ALL LEVELS & MODES TO DETERMINE IF THESE MIN. CONDITIONS ARE DIRECTLY RELATED TO JAR-OFF SITUATIONS.

ALL INDIVIDUAL RESULTS IN APPENDIX "A" DATA SHEETS.

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TEST PROCEDURE:

PAGE #4

A. MEASUREMENTS

1. TRIGGER PULL LB. MEASUREMENTS WERE TAKEN AT START OF TEST AND AT 300-600-1000 AND EVERY 1,000 CYCLES THEREAFTER.

2. SEAR ENGAGEMENT, TRIGGER PULL AND OVER TRAVEL WERE SET TO REMINGTON SPECS AT START OF TEST ON PRODUCTIONS OPTICAL COMPARATOR.

B. TEST CONDITIONS:

1. TRIGGER PULL, SEAR ENGAGEMENT AND TRIGGER OVER TRAVEL WERE SET ON ALL FOUR TEST VEHICLES ON PRODUCTIONS OPTICAL COMPARATOR IN M/700 FINAL ASSM. AREA.

2. TRIGGER PULL FORCES WERE MEASURED ON ALL FOUR TEST RIFLES USING A CHATILLOH MODEL IM-10 SPRING PULL SCALE.

3. ALL FOUR RIFLES WERE DRY-CYCLE TESTED ON THE FOUR COCK + FIRE DRY-CYCLE MACHINES IN THE R+D TEST LAB DRY CYCLE ROOM. EACH RIFLE WAS LUBRICATED LIBERALLY WITH DUPONT "TEFLON WET" LUBRICANT IN AND AROUND THE BOLT COCKING CAM SURFACE, SEAR SAFETY CAM (TOP) AND TRIGGER HOUSING INSPECTION HOLE AT INTERVAL SHOWN DRY CYCLE DATA SHEET IN APPENDIX "A"

4. A PENDULUM DROP TEST WAS CONDUCTED ON ALL FOUR RIFLES AT THE 2'-4'+6' TEST LEVELS ON BOTH HARDWOOD AND NEOPRENE BACK STOPS FROM THE MUZZLE, BUTT, BOTH SIDES, TOP AND BOTTOM.

C. RIFLES USED IN TEST:

RIFLE AND TRIGGER HOUSING #6	SERIAL # B 6341922
#7	# B 6350761
#8	# A 6338848
#9	# A 6817650

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APPENDIX "A"
DATA SHEETS-PAGES #1 AND #2

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WR# 820391

WORK REQUEST

DATE REQUESTED 2/8/82 WORK ORDER C/82-000-7
DESIGNER OR ENGINEER THOMAS J. PLUNKETT
MODEL 700 CAL OR GAUGE BARREL TYPE

TYPE OF TEST

NEW DESIGN DWG. # SK-B-36FF V-TRIGGER SCREW DESIGN CHANGE DWG #SK-A-36P7 V-TRIGGER SCREW STD.
DRY CYCLE V-10,000 PER ACCURACY HAND LOADING STRESS
PRESSURE MUZZLE VELOCITY FUNCTION PHOTOS
EVALUATION ✓ BOLT VELOCITIES OTHER
ESTIMATED COMPLETION DATE

REPORT REQUIRED

FORMAL ✓ INFORMAL TEST RESULTS ONLY

TEST OBJECTIVE

- DETERMINE BY DRY CYCLING IF TRIGGER PULL CHANGES AND REDESIGNED TRIGGER SCREW SPRING WILL SET.
- 1- FIRE CONTROL #1 - CHECK TRIGGER PULL AT START. DRY CYCLE AND RECHECK EVERY 200 TO 300 CYCLES, OR UNTIL A PARTIAL CAN BE SEEN FOR CHECKING OF TRIGGER PULLS.
 - 2- DRY CYCLE ALL FIVE TO 10,000 CYCLES EACH. RECORD TRIGGER PULL AT EACH PRE-DETERMINED INTERVAL.
 - 3- AFTER COMPLETION OF DRY CYCLE TEST GIVE BACK TRIGGER PLATES TO DESIGNER SO THAT MEASUREMENTS CAN BE TAKEN. DO NOT ADJUST DURING TEST. DO NOT LOSE.

GUNS REQUIRED

- FIVE FIRE CONTROLS FURNISHED. ENGAGEMENT AND TRIGGER PULL SET ON PRODUCTION TO REM. SPEC'S.
- TRIGGER PLATES NUMBERS 1-5 ON REAR BOTTOM
- 0 - TRIGGER AND ON SAFETY.
- SPRING AND SCREW ARE EXPERIMENTAL AND CAN'T BE PLACED ON PRODUCTION

TEST COMPLETION DATE SIGNED

9 1270

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