

J. ARMS Co. Inc.
INTEGRAL RESEARCH DIVISION

APRIL 1983

"CONFIDENTIAL by Stipulation and order entered in Isachalis v. Remington Arms, Inc., et al., Supreme Court of the State of New York, County of Westchester, Index No. 9344/95"

TO C E RITCHIE
FROM R. W. HOWE

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

ABSTRACT.

R + D
RECENTLY RESEARCH + DESIGN 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 & PENDULUM DROP TESTING IF THE ABOVE ~~NEW DESIGN~~ ^{NEW} PARTS, WILL CAUSE TRIGGER PULL CHANGES AND IF REDESIGNED TRIGGER SCREW & SPRING WILL SET, DURING TEST.

TEST RESULTS:

TRIGGER PULL POUND FORCE DID RISE 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, ~~COMPRESSOR~~ ^{TRIGGER SENR} ~~ENGAGEMENT~~ + ~~TRIGGER~~
OVER TRAVEL WERE SET TO PRESENT REMINGTON SPECS.
PRESENT REMINGTON SPECS. ARE:
TRIGGER PULL - 3.0 LBS TO 5.0 LBS
ENGAGEMENT 0.15" TO 0.20"
OVER TRAVEL

2. ALL FOUR TEST VEHICLES WERE PLACED IN 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 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} ~~WAS~~ APPARENT THAT
THE TRIGGER PULL FORCES WERE RAISING TO
UNACCEPTABLE LEVELS DURING DRY CYCLE TEST,
DUE TO LACK OF LUBRIC^{ATION} ~~ATION~~.

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

Report # 820391

REPORT TEXT CONT.

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

NOTE: AFTER COMPLETION OF ^{THE ABOVE} DROP TEST IT
 WAS DECIDED TO SET RIFLE #6 TO
 THE MIN. TRIGGER PULL ^{30 LBS} AND ^{SPAN} ENGAGEMENT .015"
 SPECS. AND RE DROP TEST. TO DETERMINE
 IF THESE ^{MIN.} CONDITIONS ARE DIRECTLY
 RELATED TO JAR OFF SITUATIONS,

ALL INDIVIDUAL RESULTS IN APPENDIX A PAGE #2

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TEST PROCEDURE

A. MEASUREMENTS:

1. TRIGGER PULL LB. MEASUREMENTS WERE TAKEN AT START OF DRY CYCLE TEST AND AT 300-600-1000 + EVERY 1000 CYCLES THEREAFTER.
2. SEAR ENGAGEMENT, TRIGGER PULL AND OVER TRAVEL WERE SET ^{AT START OF TEST} ON ^{PRODUCTIONS} OPTICAL COMPARATOR ~~ON PRODUCTION, TO REMAIN~~ ^{TO REM SPEC} ~~SAVES~~.

B. TEST CONDITIONS.

1. ^{TRIG PULL} SEAR ENGAGEMENT AND TRIGGER OVER TRAVEL WERE SET ~~AND MEASURED~~ ^{ON ALL FOUR TEST VEHICLES} ON ^{ALL FOUR TEST VEHICLES ON} PRODUCTIONS OPTICAL COMPARATOR IN M/200 FINAC ASSM. DEPARTMENT.
2. TRIGGER PULL FORCES WERE ^{MEASURED} ~~TAKEN~~ ON ALL FOUR TEST RIFLES USING A CHATILLON MODEL IN-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 DATA} AT INTERVALS SHOWN IN DRY-CYCLE ~~RESULT~~ ^{DATA} SHEET IN APPENDIX A, PAGE #1

4. A PENDULUM DROP TEST WAS CONDUCTED ON ALL FOUR RIFLES AT THE 2-4 + 6 FOOT ^{LEVELS} ~~HEIGHTS~~ ON BOTH HARD WOOD AND NEOPRENE BACK STOPS FROM THE MUZZLE, BUTT, BOTH SIDES, TOP AND BOTTOM.

C. RIFLES USED IN TEST:

RIFLE + TRIGGER HOUSING #

#6
#5
#4
#3

SERIAL #

B6341922
B6350761
A6338848
A6217650

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REPORT TITLE M/700 NEW DESIGN TRIGGER SCREW AND SPRING EVALUATION REPORT # 820391

WO# C-1802-000

SERIAL NO.	B-6341922				B-635761				A-6338848				A-6817650			
GUN NO.	#6				#7				#8				#9			
START OF TEST TRIGG. PULL LBS.	1	2	3	AVG	1	2	3	AVG	1	2	3	AVG	1	2	3	AVG
X 300 CYC.	500	540	500	5.0	530	525	530	5.4	430	400	400	4.1	430	500	500	4.9
X 600	500	450	500	4.8	530	530	530	5.5	450	425	400	4.2	300	525	500	5.0
X 1000 EVERY 1000 TRIGG. AFTER	450	500	450	4.6	525	530	530	5.5	500	425	425	4.8	500	425	425	4.8
1200 1000	500	525	500	5.0	530	530	530	5.5	450	500	450	4.6	525	500	500	5.0
1400 1200	700	725	700	7.0	700	700	700	7.0	525	530	525	5.5	525	525	500	5.1
1600 1400	700	750	750	7.3	800	825	800	8.0	530	530	600	5.6	475	475	475	4.7
1800 1600	1000	1000	1000	10.00	1000	1000	1000	10.00	750	800	750	7.6	500	475	500	4.9
2000 1800	500	500	500	5.0	475	500	530	5.0	800	825	800	8.0	450	475	475	4.6
2200 2000	425	450	425	4.3	450	450	450	4.5	750	850	750	7.8	500	500	475	4.9
2400 2200	425	375	400	4.0	375	425	450	4.1	550	850	850	8.5	475	475	450	4.5
2600 2400	375	400	375	3.8	400	450	400	4.5	500	550	825	8.7	550	500	600	5.5
2800 2600	400	375	375	3.8	425	400	450	4.4	850	875	850	8.5	550	530	550	5.5
3000 2800	400	400	375	3.9	450	450	450	4.5	825	875	850	8.3	500	530	550	5.3
3200 3000	375	400	425	4.0	450	425	425	4.3	425	450	400	4.2	425	425	425	4.2
3400 3200	400	375	375	3.7	400	400	400	4.0	350	325	375	3.5	500	475	450	4.7
3600 3400	375	375	400	3.8	425	400	425	4.1	375	350	325	3.5	475	525	600	5.0
3800 3600	375	375	375	3.7	400	400	400	4.0	325	325	325	3.2	475	475	475	4.7
4000 3800	400	400	375	3.9	425	425	400	4.3	350	350	350	3.5	450	450	425	4.5
4200 4000	375	400	425	4.0	450	425	425	4.3	425	450	400	4.2	425	425	425	4.2
4400 4200	400	375	375	3.7	400	400	400	4.0	350	325	375	3.5	500	475	450	4.7
4600 4400	375	375	400	3.8	425	400	425	4.1	375	350	325	3.5	475	525	600	5.0
4800 4600	375	375	375	3.7	400	400	400	4.0	325	325	325	3.2	475	475	475	4.7
5000 4800	400	400	375	3.9	425	425	400	4.3	350	350	350	3.5	450	450	425	4.5

NOTE

GUN #6 & #7 WERE LUBED AT 5,000 DRY CYCLES
W/ TEFLOX WET LUBE TRIGGER PULL RETURNED
TO 5 LBS ON BOTH (WHEN CHECKED BEFORE FURTHER CYCLES)

GUN #8 & #9 WERE LUBED AT 10,000 DRY CYCLES
W/ TEFLOX WET LUBE TRIGGER PULL WENT TO
4.2 ON #8 AND 4.5 ON #9, (WHEN CHECKED BEFORE FURTHER CYCLES.)

(NOTE: THE ADDITION OF TEFLOX WET IS REPORT)

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REPORT NO. _____ DRY CYCLE SUMMARY PAGE NO. _____

TESTER: _____ TEST TITLE: _____

PREVIOUS CYCLES: _____ RIFLE NO. _____

DRY CYCLE SIMULATOR NO. _____ BOLT NO. _____

CYCLE RATE: _____ FIRE CONTROL NO. _____

LUBRICATION: _____ WORK ORDER NO. _____

NO. OF CYCLES: _____ TOTAL: _____

SEAR LIFT: _____ SEAR ENGAGEMENT: _____

TRIGGER PULL: 1. _____ 2. _____ 3. _____

OBSERVATIONS: SAFE ON FORCE	SAFE OFF FORCE	BOLT LIFT-COCKED	BOLT LIFT-FIRED
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

NO. OF CYCLES: _____ TOTAL: _____

SEAR LIFT: _____ SEAR ENGAGEMENT: _____

TRIGGER PULL: 1. _____ 2. _____ 3. _____

OBSERVATIONS: SAFE ON FORCE	SAFE OFF FORCE	BOLT LIFT-COCKED	BOLT LIFT-FIRED
_____	_____	_____	_____

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BARBER - PRESALE R 0113638

SUPPLEMENT #1

(HARD WOOD BACK STOP - NEEDLE STOP - PAGE #1)

GUN #	SETUP	#6	#7	#8	#9			
WPE POSITION	ON	OFF	ON	OFF	ON	OFF	ON	OFF
W WOOD STOP	OK	OK	OK	OK	OK	OK	OK	OK
2 FEET NP	OK	OK	OK	OK	OK	OK	OK	OK
MUZZLE FIRST	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
BUTT FIRST NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD 2'	OK	OK	OK	OK	OK	OK	OK	OK
2 FOOT ONLY	OK	OK	OK	OK	OK	OK	OK	OK
RIGHT SIDE NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
LEFT SIDE NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
4 FEET	OK	OK	OK	OK	OK	OK	OK	OK
MUZZLE FIRST NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
BUTT FIRST NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
4 FT SIDE NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
LEFT SIDE NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
6 FEET	OK	OK	OK	OK	OK	OK	OK	OK
MUZZLE FIRST NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
BUTT FIRST NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
RIGHT SIDE NP	OK	OK	OK	OK	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK	OK	OK	OK	OK
LEFT SIDE NP	OK	OK	OK	OK	OK	OK	OK	OK
TOP 2'	OK	OK	OK	OK	OK	OK	OK	OK
RESULTS BOTTOM	OK	OK	OK	OK	OK	OK	OK	OK

TOP	OK	OK	OK	OK	OK	OK	OK
BOTTOM	OK	OK	OK	OK	OK	OK	OK
TOP	OK	OK	OK	OK	OK	OK	OK
BOTTOM	OK	OK	OK	OK	OK	OK	OK

* NOTE #6 SET UP AT .015" ENG. & 3 LBS TRIG PULL
 OK AT ALL DROPS TILL TOP & BOTTOM AT 4' ON HARD WOOD
 THEN TARS OFF BOTH WAYS.
 ALSO TARS OFF AT 6' ON TOP W/ NEED. BACK.

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(HARD WOOD BACK STOP) NEOPRENE STOP - PAGE #2

Run #	8-6341922 #6	8-635074 #7	8-635074 #8	8-635074 #9
APPE POSITION	ON	OFF	ON	OFF
HARD WOOD STOP	OK	OK	OK	OK
2 FEET NP	OK	OK	OK	OK
MUZZLE FIRST	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
BUTT FIRST NP	OK	OK	OK	OK
HARD WOOD 2'	OK	OK	OK	OK
2 FEET ONLY	OK	OK	OK	OK
RIGHT SIDE NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
LEFT SIDE NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
4 FEET	OK	OK	OK	OK
MUZZLE FIRST NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
BUTT FIRST NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
INT SIDE NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
LEFT SIDE NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
6 FEET	OK	OK	OK	OK
MUZZLE FIRST NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
BUTT FIRST NP	OK	OK	OK	OK
*HARD WOOD	OK	OK	OK	OK
RIGHT SIDE NP	OK	OK	OK	OK
HARD WOOD	OK	OK	OK	OK
LEFT SIDE NP	OK	OK	OK	OK
TOP 2'	OK	OK	OK	OK
RESULTS BOTTOM	OK	OK	OK	OK

NEOPRENE STOP IN RED
HARD WOOD STOP IN BLACK

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	NEOPRENE RED HARD WOOD BLACK (4.25 LBS TP) # 5		(4.25 LBS T.P.) # 7		(3.5 LBS TP) # 8		(T.P. 4.5 LBS) # 9	
4' TOP	OK	OK	OK	OK	OK	OK	OK	OK
BOTTOM	OK	OK	OK	OK	OK	OK	OK	OK
6' TOP	OK	OK	OK	OK	OK	OK	OK	OK
BOTTOM	OK	OK	OK	OK	OK	OK	OK	OK

* NOTE #6 SET UP AT .05" ENG. + 3 LB TRIG PULL
OK AT ALL DROPS TILL TOP + BOTTOM AT 4' ON HARD WOOD
THEN JARS DEEP BOTH WAYS.
ALSO JARS OF AT 6' IN TOP W/ NEO. BACK.

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A

B

C

D



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(NEOPRENE BACK STOP)

PAGE #1

SET #	B-6341922	B-6350761	A-6338848	A-6817650
#	#6	#7	#8	#9
OFF POSITION	ON	OFF	ON	OFF
NEOPRENE STOP				
2 FEET	OK	OK	OK	OK
MUZZLE FIRST				
BUTT FIRST	OK	OK	OK	OK
RIGHT SIDE	OK	OK	OK	OK
LEFT SIDE	OK	OK	OK	OK
4 FEET	OK	OK	OK	OK
MUZZLE FIRST				
BUTT FIRST	OK	OK	OK	OK
RIGHT SIDE	OK	OK	OK	OK
LEFT SIDE	OK	OK	OK	OK
6 FEET	OK	OK	OK	OK
MUZZLE FIRST				
BUTT FIRST	OK	OK	OK	OK
HARDWOOD				OK
RIGHT SIDE	OK	OK	OK	BROKE BUT 11
LEFT SIDE	OK	OK	OK	OK
125				

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DON'T SAY IT-WRITE IT

To _____ Location _____
 From _____ Location _____ Phone No. _____
 Subject SM-46-2-10.00 Date _____

#6 - B6341922

WR # 820391

#7 - B-6350761

W.O.C/802-000

#8 - A-6338848

#9 - A-6817650

(~~TITLE~~) M/200 NEW DESIGN TRIGGER SCREW AND SPRING ~~EVALUATION~~
 PENDULUM DROP TEST EVALUATION
 - TRIGGER SCREW AS PER DWG # SK-B-3688
 - TRIGGER SCREW SPG. " " " " # SK-A-3687

G-88 REV. 10-62

SECURITY IS EVERYONE'S RESPONSIBILITY

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TEST LAB

10

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KINZER V. REMINGTON
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