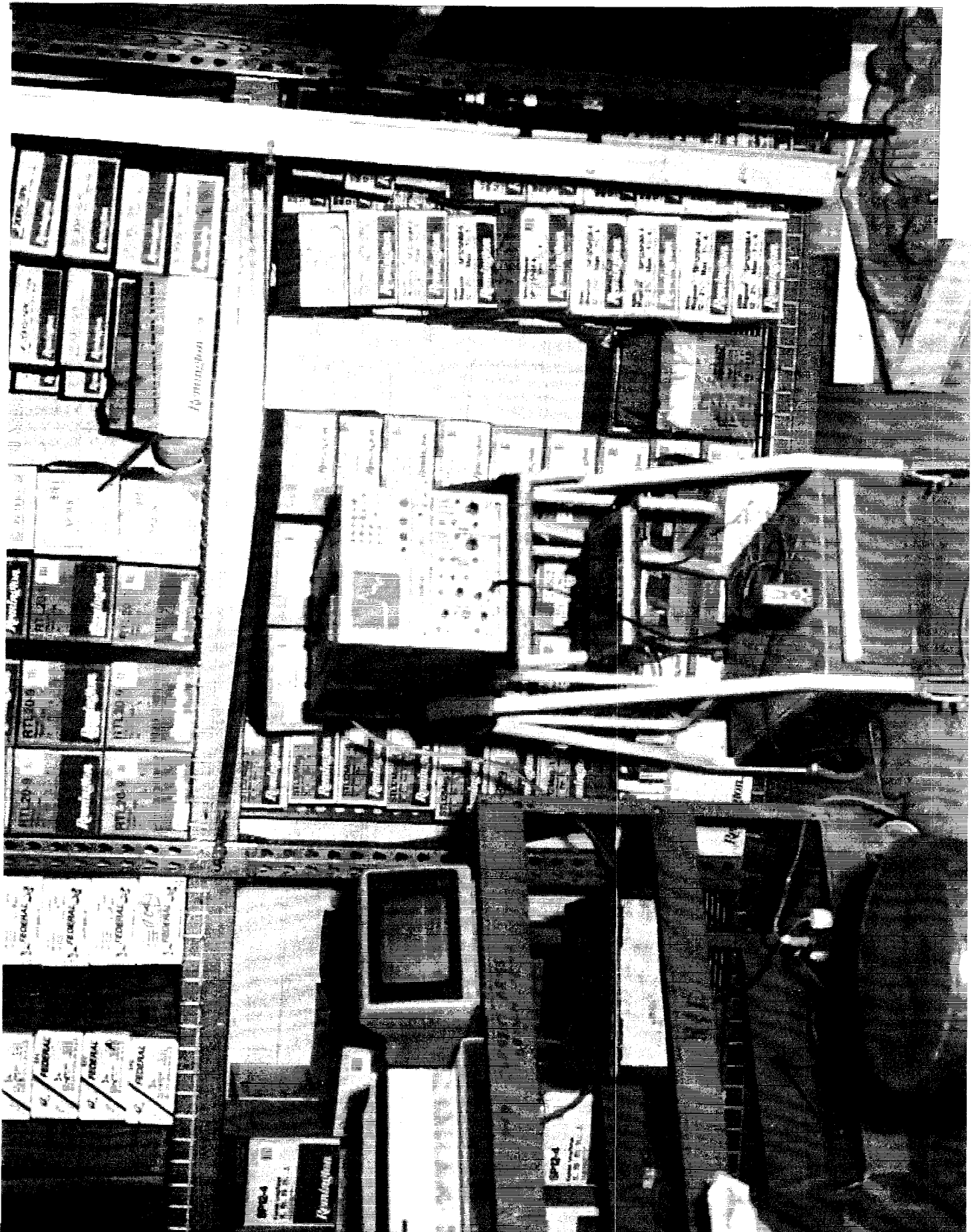


M 700 VERTICAL DROP TESTING





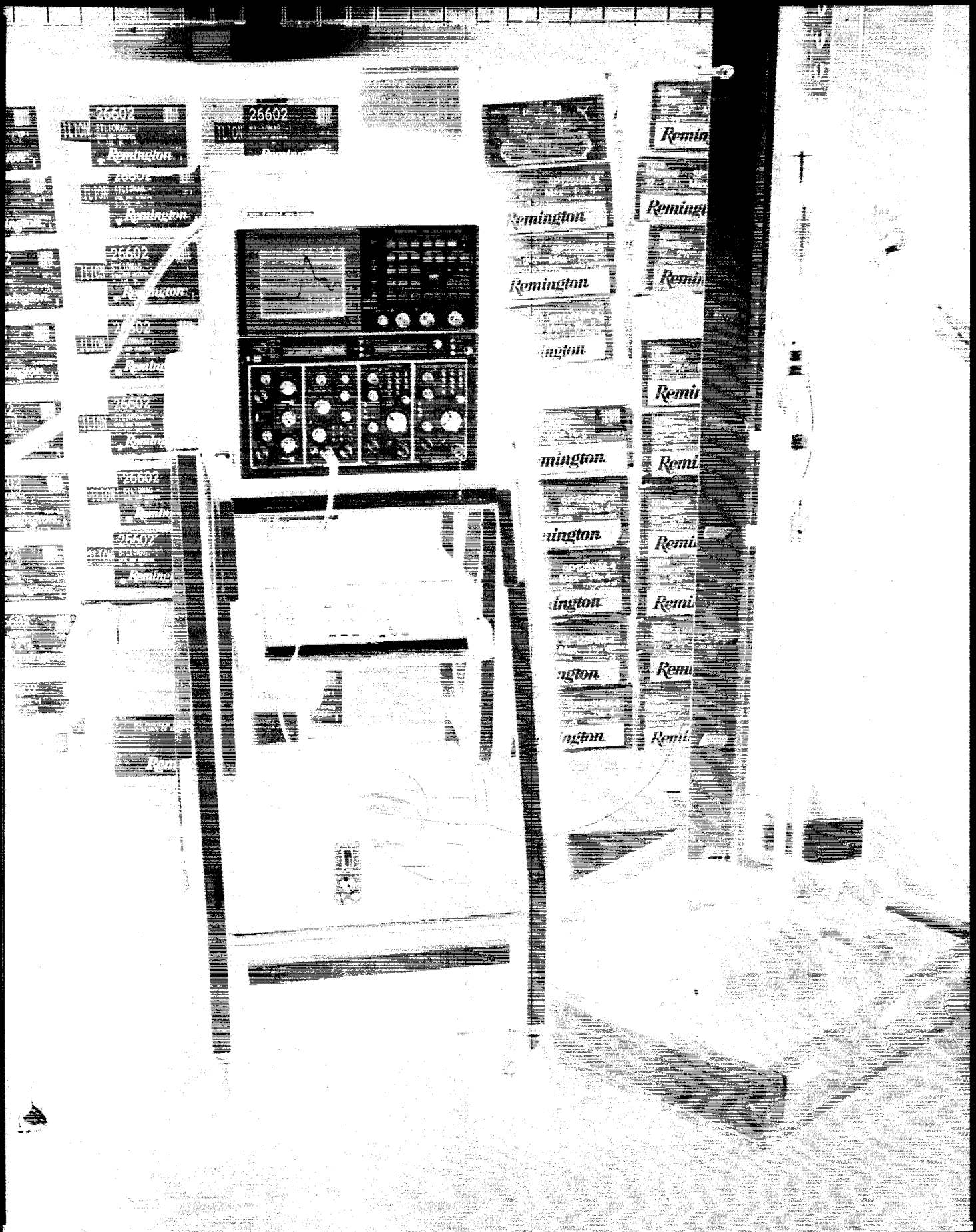
CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2537224











CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2537229



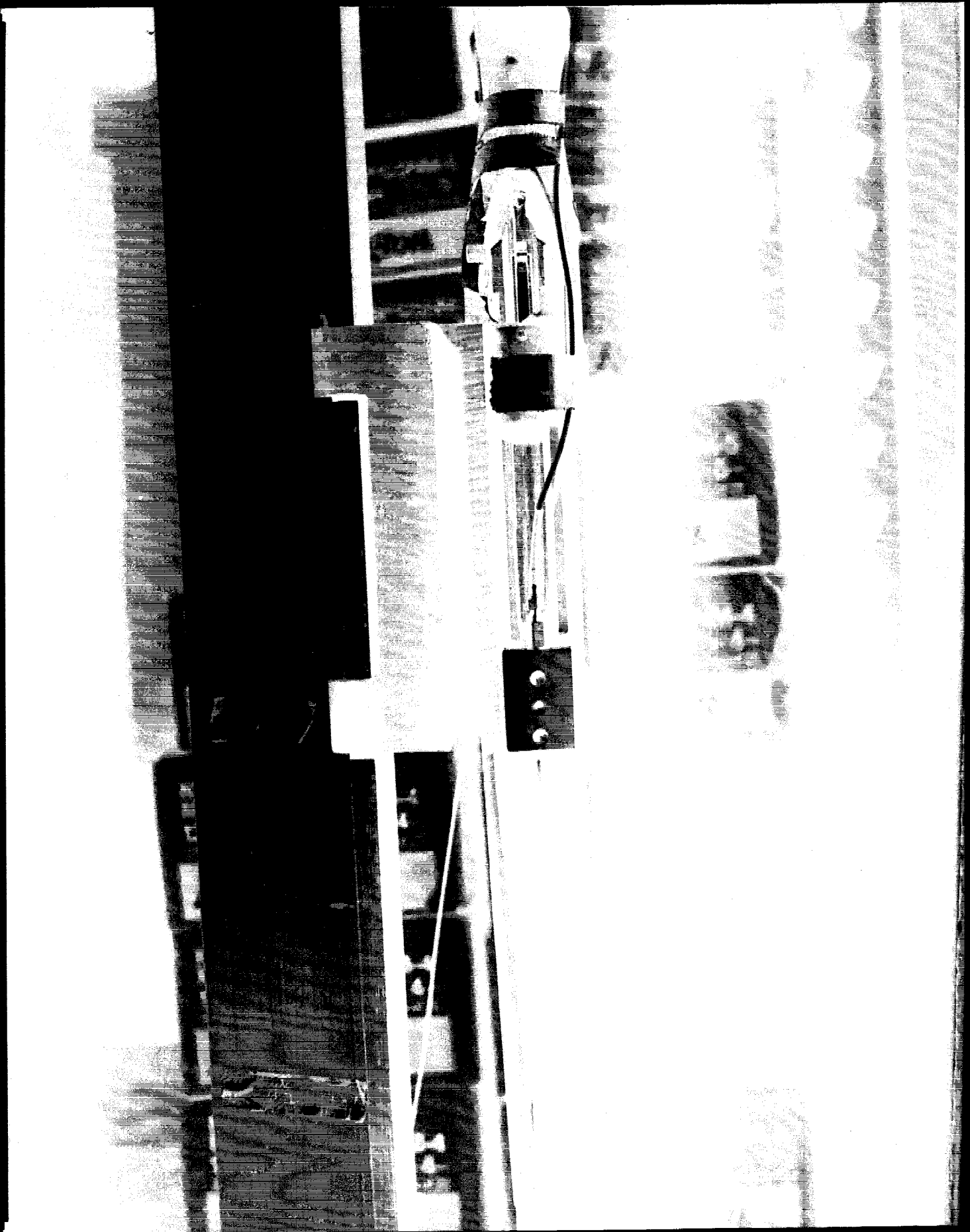
CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

K2537230



CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

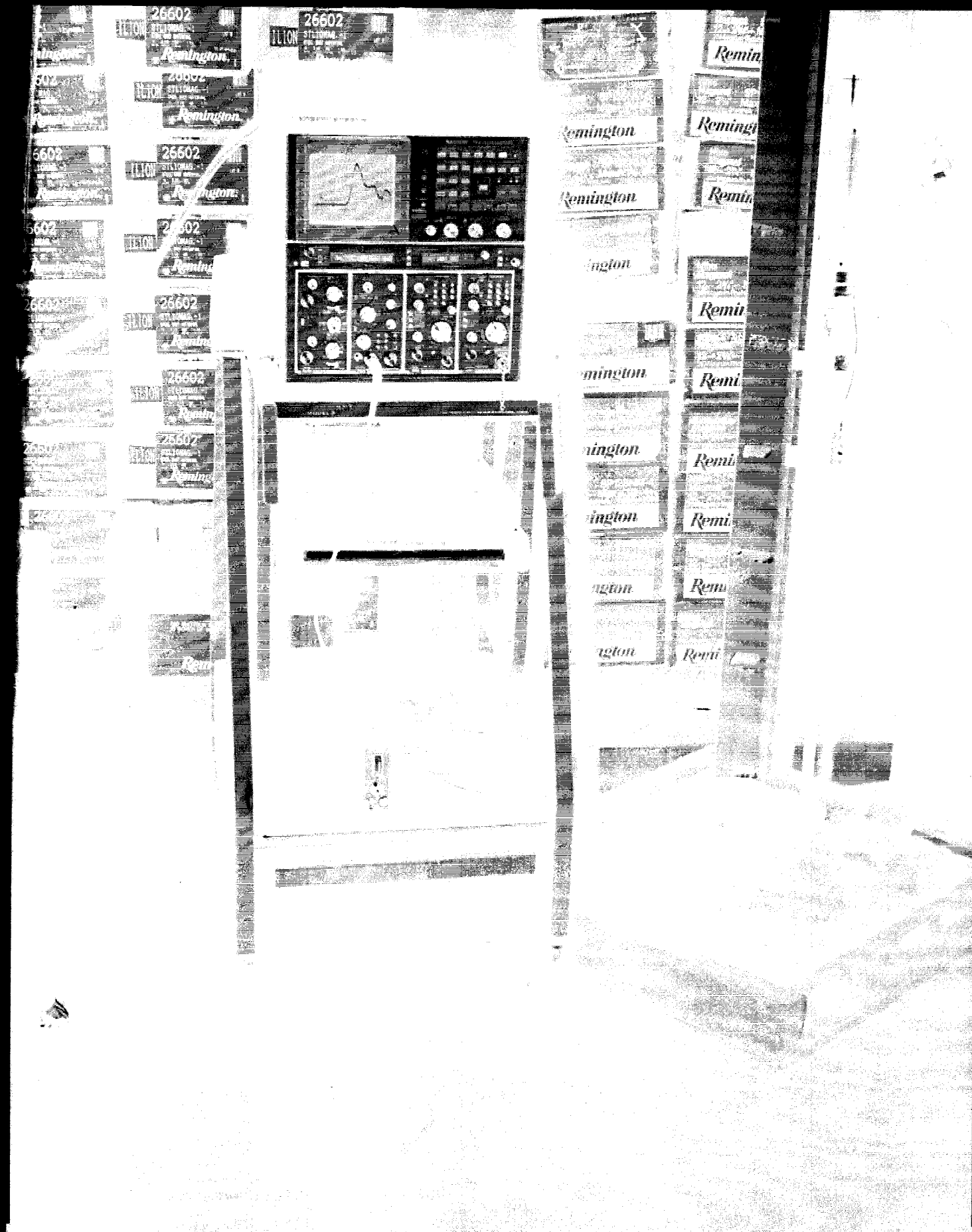
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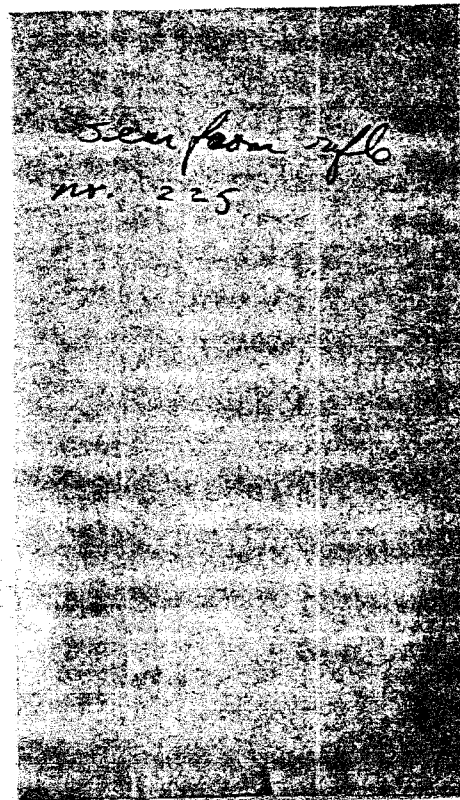
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KINZER V. REMINGTON

R2537232





M700 ISCAR POWER METAL



Used in 721, 722, 700, 600

A 15436 Connector M 600, 660
 A 19461 Connector M 721, 722, 700
 B 19461 Connector M 721, 722, 700 Current print

1B 17945 Safety Cam (Blank) 721, 722, 700
 2B 17945 Safety Cam 721, 722, 40X
 B 15369 Safety Cam M 600, 700, 40XB

1B 17946 Scan (Blank) M 721, 722, 725, 700
 2B 17946 Scan M 721, 722, 725, 700

1C 17946 Scan (Blank) M 721, 722, 725 - Before 61
 2C 17946 Scan M 721, 722, 725

N 26590 ^{Introduced in 1961} Scan Safety Cam Assembly (2pc.) M 600, 700

N 22045 Scan Safety Cam Assembly (2pc.) M 721, 722

C 15666 ^{Introduced in 1966} Scan Safety Cam Assembly M 600, 700

CC: R.A. Williamson
H.J. Hackman
L.J. Boyle
W.C. Schrader
M.H. Walker
A.J. Seckner) In
D.E. Geiss) turn
V.G. DeReus
Estimate File #2502

April 13, 1966

A.D. KERR

MODEL 600-700 SEAR AND SAFETY CAM ASSEMBLY
USING INVENTORIES OF OLD DESIGN PARTS VERSUS
THEIR DISPOSAL AND SUBSTITUTING WITH THE
NEW ONE-PIECE POWDER METAL ASSEMBLY

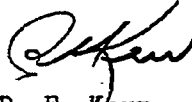
It is our understanding that approximately 40,000 Sears and Safety Cams are on the plant in the "as received" condition.

In view of the apparent attractive cost for the new one-piece powder metal design, a review has been made to determine an economic disposition of the parts on hand.

Discounting the purchase price, the estimated direct cost to complete these parts into Sear and Safety Cam Assemblies is \$11,500. The estimated cost to produce (per our present process) 40,000 of the one-piece powder metal assemblies is \$4,300. This indicates a gross savings of \$7,200 in plant operating costs with the powder metal component.

When sufficient quantities of new parts are available to meet production requirements, it would seem economically advisable to dispose of any old part inventories in the "as received" condition.

F. G. Carlson, Supervisor
Methods & Standards Section


R. F. Kerr

RFK:am

cc: R.A. Williamson
 S.M. Alvis
 H.J. Hackman
 V.G. DeReus
 A.J. Seckner) In
 D.E. Geiss)
 Estimate File #2502

April 4, 1966

M. H. WALKER

**MODELS 700, 600, 100, 40XB - SEAR AND SAFETY CAM ASSEMBLY
 COST COMPARISON - OLD TWO-PIECE DESIGN VERSUS
 NEW POWDER METAL SINGLE-PIECE CONSTRUCTION**

In response to your recent request, estimates have been developed to show a comparison of full factory costs. Costs for the proposed single-piece powder metal design are based on the common process just released by PE&C.

<u>Sear and Safety Cam Assembly</u>	<u>Present Part No.</u>	<u>Estimated Cost per 100</u>		<u>Estimated Reduction per 100</u>
		<u>Present</u>	<u>Proposed</u>	
Model 700, 600	26591	\$ 53.91	\$ 14.72	\$ 39.19
Model XP-100	26735	54.10	14.72	39.38
Model 40XB	26591	63.97	14.72	49.25

Our 1966-#2 Sales Forecast totaling 87,125 units, shows a full factory cost reduction of approximately \$34,300 with the new process.

F. G. Carlson, Supervisor
 Methods & Standards Section

R. F. Kerr
 R. F. Kerr

PEK:sm

cc: W.L. Leek
C.R. Morse
R.H. Walker
J.W. Brooker
Hest. Vetterman
R.P. Kelly

Ilion, New York
June 23, 1966

MEMORANDUM

TO: C. D. Vetterman *CDV*
FROM: A. A. Hagick

DROP TESTING OF MODEL 600 POWDER METAL SEARS

The enclosed drop test procedure was organized and conducted using the M/600 with one piece powder metal sears. Drop testing at ten inches corresponds to the test manual standard and waist high drop testing (45") was included for increasing drop test severity. A sample of chrome plate powder metal sears produced to date was included for drop test purposes. Sears numbered 1 thru 5 are old style sears with the large .003+ inch radius at the connector surface edge. Sear numbered 6 thru 8 are new sears with .001+ inch radius at the connector surface edge.

Fire control adjustments were made by production prior to drop testing.

Listed below are M/600 powder metal sear drop test observations:

1. The measured RC hardness of the new PM samples was 45 RC average versus 50 RC average for old samples.
2. No malfunctions were experienced at the normal drop height of 10".
3. Page 2 contains listed jar-off malfunctions encountered during the waist high M/600 drop testing. These high drop malfunctions are similar to prior test results of May 1964 special "Jar-Off" testing.
4. Tight sear pin holes of the new sears were polished out prior to drop testing.
5. Minor chipping of the sear connector edge of the old sear was noticed when examined with a 20X glass.

RECOMMENDATION

Based on M/700 and M/600 chrome plated powder metal sear testing, the new chromed powder metal sears should be considered for use in the M/600.

AAH:c
Enc.

TITLE OF PROJ. **M 600 POWDER METAL SEAR**

PROJ. NO.

SUBJECT **CHROME PLATED POWDER METAL SEAR**

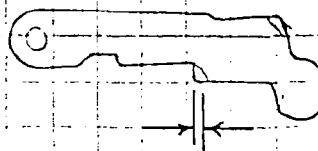
WORKS

DATA FOR DROP TESTING COMPUTER AAH

DATE **6-9-66**

19

SEAR NUMBER	TOTAL NUMBER OF DRY CYCLES	SEAR RADIUS AT CONN. EDGE	SEAR COMPONENT WEIGHT & HARDNESS	AVE. TRIB. PULL AT BEGINNING AND END OF TEST
1	0	.0034	9.3900 gr. 48 RC SCALE	5.77 - 5.60
2	0	.0039	9.3705 gr. 51 RC SCALE	6.25 - 5.30
3	0	.0042	9.3655 gr. 53 RC SCALE	5.45 - 5.70
4	0	.0039	9.4176 gr. 51.5 RC SCALE	5.00 - 4.85
5	0	.004	9.4423 gr. 53 RC SCALE	5.50 - 5.05
6	0	.0005 ⁺	9.5337 gr. 44.5 RC SCALE	5.50 - 5.50
7	0	.000 ⁺	9.5182 gr. 46.5 RC SCALE	5.90 - 5.70
8	0	.0012	9.4955 grams 45.0 RC SCALE	5.25 - 5.50



SEAR RADIUS AT CONN. EDGE MEASURED ON THE OPTICAL COMPARATOR.

WAIST HIGH IS TAKEN AS .45 INCHES.

TITLE OF PROJ M 600 POWDER METAL SEAR PROJ NAME
SUBJECT DRD P TEST RESULT WITH M600 WORKS
PM SEAR TESTING COMPUTER AAH. DATE 6-7

PRO: N

WORKS

DATE 6-14-66

12

TYPE OF SEAR TESTED	NUMBER OF FAILURES	DROP TEST STEP NO.	NUMBER OF SEARS TESTED	TEST GUN SERIAL NO.	COMMENTS
STANDARD PROD.	1	VI-2	2	20344	
STANDARD PROD.	1	VI-4	2	20344	
FIRST RM.	0	—	1	—	
LARGE CON. RAD.	1	VI-4	4	1167	
LAST SHARP SEARS	1	VI-3	3	1167	
LAST SHARP SEARS	1	VI-2	3	20344	

VI JAR OFF TEST

A. DROP GUN WAIST HIGH ON SOLID WOOD SURFACE WITH SAFETY OFF

1. BUTT DOWN
2. MURZLE DOWN
3. TOP SIDE DOWN
4. BOTTOM SIDE DOWN

B. TRIGGER SHALL BE TRIED AFTER EACH DROP TO DETERMINE WHETHER THE SAFETY HAS RELEASED ANY MECHANISM WHICH MAY ALLOW FIRING.

C. THREE DROPS PER POSITION.

"WAIST HIGH" IS TAKEN AS 45 INCHES.

CHRONOLOGICAL RECORD OF TESTING

MODEL & DESCRIPTION *m/600 New P.M. sears.*
 CALIBER or GAUGE *308* ~~7.62 mm~~ *(LATEST - SHARP)*
 DATE *6-3-66* TEST *P.M. Spear Drop Test* ^(re-test) TESTER *J. Hennings.* PAGE NO.

barrels- *1007 & 20344* were used placing different sears
 in these two barrels only. *(3 sears)*

✓ Test - I - Trigger pulls & firing pin indents *(on sep. sheets.)*

✓ Test - II - No malfunctions noticed

✓ Test - III - *(butt down)* sear # 2 had a total of 3 drops in
 which the safety was jarred to the "^{ON}~~OFF~~" pos.

✓ Test - IV - No malfunctions noticed

✓ Test - V - *(muzzle down)* sears # 1, 2, & 3 had a total of 7 drops in
 which the safety was jarred to the "OFF" pos.

Test - VI - *(butt down)* - sear # 1 - on all three drops the
 safety was jarred to the "ON" pos.

(muzzle down) - sear # 3 on second drop gun
 fired.

top-side down - sear # 2 on first drop gun fired.

CHRONOLOGICAL RECORD OF TESTING

MODEL & DESCRIPTION *m/600 New P.M. sears.*CALIBER ~~OF GAUGE~~ *308* (*LARGE RAP. SEAR*)DATE *6-2-66* TEST *P.M. Sear Drop Test*

TESTER

PAGE NO.

J. Hennings.

✓ Barrels # *1167 & 20341* were used placing different sears in these two barrels only.

✓ Test - I - Trigger pulls + firing pin indents (on sep. sheets)

✓ Test - II - No malfunctions noticed

✓ Test III - (~~butt~~ ^{muzzle} down) - sears # *1+2* had a total of 5 drops in which safety jarred to "ON" position.

✓ Test - IV - No malfunctions noticed

✓ Test - V - (butt down) - sears # *1,2,3,4,5* had a total of 13 drops in which safety jarred to "OFF" position

TEST - VI - (muzzle down) - sears # *2,3,4* had a total of 9 drops in which safety was jarred to "ON" position
(top side down) - sear # *2* - on third drop bolt jarred open.

(bottom side down) - sear # *4* on second drop the jar fired the firing pin.

NOTE! ON BOTH ACTIONS - PIN HOLE WAS TIGHT CAUSING SEAR TO BIND!

CHRONOLOGICAL RECORD OF TESTING

MODEL & DESCRIPTION	DATE	TEST	TESTER	PAGE NO.
m/600 std. rear drop test.				
CALIBER OF GAUGE	308		PRESALE PRODUCTION (2 piece)	

6-13-66 661.8 # 11674 20344 308 cal. m/600
were dropped from various pos. with
std. rears in fire-control.

#1167 all tests OK except Test V. muzzle-down
waist high the safe jammed to "off" pos. on all 3 dgs.

" 20344 Tests I-IV-OK

Test II - (butt down
waist high) → safe jammed to "off" pos. on all 3 dgs.

Test VI → (muzzle-down
waist high) on 1st drop gun fired

Test VI → (bottom-side down
waist high) - on 3rd drop gun fired

Test - V → (butt down
waist high) → safe jammed to "on" pos. on 3rd drop

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE



"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

DROP TEST PROCEDURE

MEASUREMENT and TEST LAB

- I. Trigger Pull and Firing Pin Indent
 - A. Take five samples.

- II. Safety Mechanism Shock Test
 - A. Drop gun ten inches on solid wood surface with safety "ON".
 1. Butt down
 2. Muzzle down
 3. Topside down
 4. Bottom down
 - B. The Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.
 - C. Three drops per position.

- III. Jar-Off Test
 - A. Drop gun ten inches on solid wood surface with safety "OFF".
 1. Butt down
 2. Muzzle down
 3. Topside down
 4. Bottomside down
 - B. The Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.
 - C. Three drops per position.

AAH:T
566

DROP TEST PROCEDURE - Measurement & Test Lab

IV. Safety Operations Test

- A. This test is for testing the safety mechanism.
 - 1. Cock gun
 - 2. Put Safety "ON"
 - 3. Try Trigger
 - 4. Release the Safety
 - 5. Pull Trigger
 - 6. Record if Trigger functions with Safety on
 - 7. Record if Firing Pin fell when Trigger was pulled
- B. Make 50 trials.

V. Safety Mechanism Shock Test

- A. Drop gun "waist height" on solid wood surface with safety "ON".
 - 1. Butt down
 - 2. Muzzle down
 - 3. Topside down
 - 4. Bottomside down
- B. The Trigger shall be tried after each drop to determine whether the Safety has released any mechanism which may allow firing.
- C. Three drops per position.

VI. Jar Off Test

- A. Drop gun "waist height" on solid wood surface with safety "OFF".
 - 1. Butt down
 - 2. Muzzle down
 - 3. Topside down
 - 4. Bottomside down
- B. Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.
- C. Three drops per position.

VII. Gun Function Check

- A. Trigger pull
- B. Firing pin indent
- C. Take sample of five.

AAH:T
566

Illion, New York
June 13, 1966

MEMORANDUM

To: C. B. Workman

From: A. A. Hugick

DROP TESTING OF MODEL 700 POWDER METAL SEARS

The enclosed drop test procedure was organized and conducted using M/700 powder metal sears. Two samples of M/700 sears were submitted for drop testing at this time.

Sample No. 1 consisted of M/700 chrome plated powder metal sears with approximately .003" radius when received from Production and had been cock-and-fire dry cycled for 30,000 cycles each. No malfunctions of the sear were encountered during drop testing of sample No. 1 sears.

Sample No. 2 consisted of M/700 chrome plated powder metal sear with approximately .0005-.001" radius at the connector edge, increased density, and zero dry cycles. No malfunctions of the sear were experienced during drop test of the M/700. This sample of sears had tight pin holes and had to be polished out for testing.

The fire control adjustment was made by Production prior to the dry cycle and drop testing. Hardness measurements on the RC scale varied from 38.5 RC to 54.5 RC. This variation of measured RC hardness should be clarified. *Reedy Chalkwick said that Hardness spec was changed.*

Recommendations:

Based on test results of submitted test samples, the chrome plated powder metal sears should be considered for use in the M/700.

If the hardness difference is considered significant, some of the latest, softer sears should be dry cycled for wear on the sear connector edge.

Enc.
AAH/c

M 700 PM SEAR TEST
D R O P T E S T S E A R D A T A,
COMPUTER A A H I

PROD. NO.

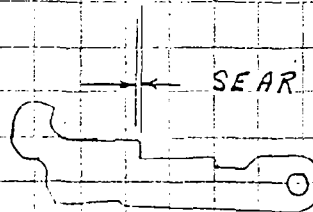
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DATE

19

SAMPLE NUMBER ONE				
SEAR NUMBER	TOTAL NUMBER OF DRY CYCLES	SEAR RADIUS AT CONNECTOR EDGE	SEAR COMPONENT WEIGHT & HARDNESS	AVE. TRIG. PULL ① BEGINNING AND END OF TEST
153959	30,000	.0045	9.3685 GRAMS 38.5 RC SCALE	5.10 - 5.10
139298	30,000	.0035	9.4080 gr 52 RC SCALE	5.20 - 5.15
139413	30,000	.0050	9.4200 gr 51.5 RC SCALE	3.90 - 3.80
139555	30,000	.0068	9.3880 52 RC SCALE	4.90 - 4.55
139312	30,000	.0029	9.4140 gr 51 RC SCALE	NOT TESTED
139457	30,000	.0053	9.4310 gr 54.5 RC SCALE	4.60 - 4.75

SAMPLE NUMBER TWO				
139298 BLUE	00	.0005	9.5332 38.5 RC SCALE	5.55* - 4.95
139413 TESTED IN	00	.0011	9.5000 45.0 RC SCALE	4.85 - 4.75



SEAR RADIUS AT CONNECTOR
MEASURED ON
OPTICAL COMPARATOR

WAIST HEIGHT WAS TAKEN AT 4.5 INCHES.

CHRONOLOGICAL RECORD OF TESTING

MODEL & DESCRIPTION ~~700~~ ^{POWDER METAL SEAR WITH 100352} ~~100352~~ ~~(11)~~

CALIBER or GAUGE .243

DATE 6-1-66 TEST M/700 sear drop test TESTER J. Hennings. PAGE NO.

Cartridges - 1 139298, 2 139457, 3 139555, 4 139457, 5 139413 - were used
with powder metal
manufactured sears.

Test - I - Trigger pulls & Firing pin indents - (separate sheets)

Test - II - (top side down) # 139457 on second drop rear sight broke

Test - III - (bottom side down) # 139457 on first & second drops bolt jarred open

Test - IV - no malfunctions noticed

Test - V - (top side down) # 139457 on second drop rear sight came off
(bottom side down) # 139298 on second drop stock started to crack
around trigger plate.

Test - VI - (muzzler down) sears # 1, 2, 3, had a total of 7 drops
in which safety was jarred to "ON" position.
(top side down) sears # 1, 3, 4, 5 - had a total of 5 drops
in which bolt was jarred open. (# 139298 on third
drop safety jarred to "ON" position.)
(bottom side down) sears # 1, 2, 3, 4 - had a total of 5 drops
in which bolt jarred open. (# 139555 on first
drop stock broke just behind trigger guard)

CHRONOLOGICAL RECORD OF TESTING

MODEL & DESCRIPTION 700 P.M. sear (LATEST P200 w SHARP RND)

CALIBER or GAUGE .243

DATE 6-1-66 TEST P.M. sear Drop test TESTER J. Hennings PAGE NO.

barrels # 139298 & 139413 were used with new
P.M. sears.

TEST - I - Trigger pulls & firing pin indents (separate shoots)

TEST - II - (butt down) - # 139298 - on first drop rear sight
broke off.

TEST III - (MUZZLE down) - # 139298 - on second drop bolt
jarred open.

TEST - IV - no malfunctions noticed.

TEST - V - no malfunctions noticed.

TEST - VI - (butt down) both guns - a total of 4 drops in
which safety was jarred open.
139298 on third drop bolt jarred open.

NOTE! ON BOTH ACTIONS PIN HOLE LOOS TIGHT
CAUSING SEAR TO BIND--

DROP TEST PROCEDURE - Measurement & Test Lab

IV. Safety Operations Test

A. This test is for testing the safety mechanism.

1. Cock gun
2. Put Safety "ON"
3. Try Trigger
4. Release the Safety
5. Pull Trigger
6. Record if Trigger functions with Safety on
7. Record if Firing Pin fell when Trigger was pulled

B. Make 50 trials.

V. Safety Mechanism Shock Test

A. Drop gun "waist height" on solid wood surface with safety "ON" *safe*.

1. Butt down
2. Muzzle down
3. Topside down
4. Bottomside down

B. The Trigger shall be tried after each drop to determine whether the Safety has released any mechanism which may allow firing.

C. Three drops per position.

VI. Jar Off Test

A. Drop gun "waist height" on solid wood surface with safety "OFF" *safe*.

1. Butt down
2. Muzzle down
3. Topside down
4. Bottomside down

B. Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.

C. Three drops per position.

VII. Gun Function Check

- A. Trigger pull
- B. Firing pin indent
- C. Take sample of five.

AAH:T
GDS

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington
DUPONT*PETERS*
DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

DROP TEST PROCEDURE

MEASUREMENT and TEST LAB

- I. Trigger Pull and Firing Pin Indent
- A. Take five samples.
- II. Safety Mechanism Shock Test
- A. Drop gun ten inches on solid wood surface with safety "ON" *Safe*.
1. Butt down
 2. Muzzle down
 3. Topside down
 4. Bottom down
- B. The Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.
- C. Three drops per position.
- III. Jar-Off Test
- A. Drop gun ten inches on solid wood surface with safety "OFF" *Safe*.
1. Butt down
 2. Muzzle down
 3. Topside down
 4. Bottomside down
- B. The Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.
- C. Three drops per position.

AAH:T
566

Date Received 5-31-66

Model 700 -

Description

Barrel ~~len.~~

139298

Caliber

.243

Type of Feed

bolt

Other

~~feed. same~~ "1"
Powder metal .00328.

Date 5-1-66

Firing Pin Indent (Inches)

Before

1	.020
2	.020
3	.020
4	.020
5	.020

Avg. of 5	.020
Max.	.020
Min.	.020
Ev.	0

Firing Pin Indent

After

1	.021
2	.021
3	.0205
4	.021
5	.021

Avg. of 5	.0209
Max.	.021
Min.	.0205
Ev.	.0005

Trigger Pull (lbs.)

Before

1	5.50
2	5.25
3	5.00
4	5.25
5	5.00

Avg. of 5	5.20
Max.	5.50
Min.	5.00
Ev.	.50

Trigger Pull (lbs.)

After

1	5.00
2	5.00
3	5.25
4	5.25
5	5.25

Avg. of 5	5.15
Max.	5.25
Min.	5.00
Ev.	.25

661.

139 298

Test - I - OK

" II - OK

" III - OK

" IV - OK

" V - A.

4. on second drop stock started to crack around trigger plate.

" VI. A.

2. on first + second drops safety jammed to "ON" position.

3. on second drop bolt opened.
on third drop safety jammed to "ON" position.

4. on second & third drops bolt jams open

Date Received 5-31-66

Model 700

Description

Barrel Len. # 153959
 Caliber .243.
 Type of Feed bolt
 Other ~~wood~~ ~~metal~~ # 2
 Powder metal wcp2.

Date 6-1-66

Firing Pin Indent (Inches)
Before

1 .020
 2 .0195
 3 .0195
 4 .020
 5 .020

Avg. of 5 .0195
 Max. .020
 Min. .0195
 Ev. .0005

Firing Pin Indent
After

1 .0215
 2 .0215
 3 .022
 4 .022
 5 .0215

Avg. of 5 .0217
 Max. .022
 Min. .0215
 Ev. .0005

Trigger Pull (lbs.)
Before

1 4.75
 2 5.25
 3 4.75
 4 5.25
 5 5.50

Avg. of 5 5.10
 Max. 5.50
 Min. 4.75
 Ev. .50

Trigger Pull (lbs.)
After

1 5.25
 2 5.00
 3 5.25
 4 5.00
 5 5.00

Avg. of 5 5.10
 Max. 5.25
 Min. 5.00
 Ev. .25

661

153.95-9

Test- I - OK

Test II - OK

" III - OK

" IV - OK

" V - OK

" VI - A.

B on all three drops safety was
jammed to "ON" position.

4. on third drop bolt opened

Date Received 5-31-66

Model 700

Description

Barrel Len.

139550

Caliber

.243

Type of Feed

bolt

Other

prod. ~~3~~ 3
Powder MTCAL .00682

Date 6-1-66

Living Pin Indent (Inches)
Before

1	.021
2	.021
3	.020
4	.020
5	.020

Avg. of 5	.0204
Max.	.021
Min.	.020
Ev.	.001

Firing Pin Indent
After

1	.021
2	.022
3	.0215
4	.022
5	.0215

Avg. of 5	.0216
Max.	.022
Min.	.021
Ev.	.001

Trigger Pull (lbs.)
Before

1	4.75
2	4.75
3	4.75
4	4.75
5	5.50

Avg. of 5	4.90
Max.	5.50
Min.	4.75
Ev.	.75

Trigger Pull (lbs.)
After

1	4.50
2	4.75
3	4.50
4	4.50
5	4.50

Avg. of 5	4.55
Max.	4.75
Min.	4.50
Ev.	.25

661 # 139555

Test I - OK

" II - OK

" III - OK

" IV - OK

" V - OK

" VI - A.

1. - on second and third drops safety was
 moved to "ON" position.

3. - on first + third drops bolt opened on
 recoil of drop.

4. stock broke at rear of trigger guard
 on first drop.
 on second drop bolt opened on
 recoil of drop.

Date Received 5-31-66

Model 700

Description

Barrel Len.
 Caliber
 Type of Feed
 Other

139457
 .243
 Bolt
~~Ad.~~ ~~4~~ #4
 Rem 22a Rem 500 5005 R.

Date 6-1-66

Trigger Pin Indent (Inches)
 Before

1 .030
 2 .020
 3 .020
 4 .020
 5 .0195

Avg of 5 .0199
 Max. .030
 Min. .0195
 Ev. .0005

Firing Pin Indent
 After

1 .019
 2 .019
 3 .019
 4 .020
 5 .019

Avg of 5 .0192
 Max. .020
 Min. .019
 Ev. .001

Trigger Pull (lbs.)
 Before

4.75
 4.75
 4.50
 4.50
 4.50

Avg. of 5 4.60
 Max. 4.75
 Min. 4.50
 Ev. .25

Trigger Pull (lbs.)
 After

1 4.75
 2 4.75
 3 4.75
 4 4.75
 5 4.75

Avg. of 5 4.75
 Max. 4.75
 Min. 4.75
 Ev. 0

661. # 139 457

Test - I - OK

" II - A.

3. on second drop rear sight broke

" III - A.

4. - on first + second drop bolt jammed open.

" IV - OK

" V - A.

3. on second drop rear sight came off.

" VI - A.

3 on third drop bolt jammed open

Date Received 5-31-66

Model 700

Description

Barrel Len.
Caliber
Type of Feed
Other

139413

.243

bolt

~~prod. steel~~ # 5
Powder metal 10050 R.

Date 6-1-66

Firing Pin Indent (Inches)
Before

1 .019
2 .019
3 .0195
4 .019
5 .019

Avg. of 5 .0191
Max. .0195
Min. .019
Ev. .005

Firing Pin Indent
After

1 .019
2 .020
3 .0195
4 .019
5 .019

Avg. of 5 .0193
Max. .020
Min. .019
Ev. .001

Trigger Pull (lbs.)
Before

1 3.75
2 3.75
3 4.00
4 4.00
5 4.00

Avg. of 5 3.90
Max. 4.00
Min. 3.75
Ev. .25

Trigger Pull (lbs.)
After

1 4.00
2 3.75
3 3.75
4 3.75
5 3.75

Avg. of 5 3.80
Max. 4.00
Min. 3.75
Ev. .25

661. 139413

Test - I - OK

Test - II - OK

" - III - OK

" - IV - OK

" - V - OK

" - VI - A. 1 - OK

2. - first drop bolt jammed open

3. bolt jammed open on third drop.

4. - OK

PROCEDURE

GUN DESIGN SPECIFICATIONS SHEET

Date Received 5-31-66Model 700 243 cal.Description:

Barrel Length 4139295 new rear
 Caliber 243
 Type of Feed bolt.
 Other _____

			Design Spec	Tester	Date
I	Headspace as Received				
II	Proof Test	☐ Yes			
III	Headspace after Proof				
IV	Firing Pin Indent (Inches)				
	1	<u>.019</u>			
	2	<u>.0185</u>			
	3	<u>.0185</u>			
	4	<u>.0185</u>			
	5	<u>.0185</u>			
	6	<u>.019</u>			
	7	<u>.019</u>			
	8	<u>.019</u>			
	9	<u>.019</u>			
	10	<u>.019</u>			
	Avg. of 10 <u>.0185</u>				
	Max. <u>.019</u>				
	Min. <u>.018</u>				
	E.V. <u>.001</u>				
V	Trigger Pull (Lbs.)				
	1	<u>5.50</u>			
	2	<u>6.25</u>			
	3	<u>5.50</u>			
	4	<u>5.25</u>			
	5	<u>5.25</u>			
	6	<u>6.00</u>			
	7	<u>4.75</u>			
	8	<u>4.25</u>			
	9	<u>4.50</u>			
	10	<u>5.25</u>			
	Avg. of 10 <u>5.55</u>				
	Max. <u>6.25</u>				
	Min. <u>5.25</u>				
	E.V. <u>1.00</u>				
VI	Firing Pin Protrusion (in.)				
	(a) Positive				
	(b) Extreme				

Date Received 5-31-66

Model 700

Description

Barrel Len.

139298

Caliber

.243

Type of Feed

bolt

Other

New P.M. Scar #1

Date 6-2-66

Firing Pin Indent (Inches)

Before

1	.019
2	.018
3	.0175
4	.0185
5	.0185

Avg. of 5	.0185
Max.	.019
Min.	.017
Ev.	.001

Firing Pin Indent

After

1	.019
2	.019
3	.019
4	.019
5	.019

Avg. of 5	.019
Max.	.019
Min.	.017
Ev.	0

Trigger Pull (lbs.)

Before

1	5.50
2	6.25
3	5.50
4	5.25
5	5.25

Avg. of 5	5.55
Max.	6.25
Min.	5.25
Ev.	1.00

Trigger Pull (lbs.)

After

1	6.00
2	4.75
3	4.25
4	4.50
5	5.25

Avg. of 5	4.95
Max.	6.00
Min.	4.25
Ev.	1.75

661 # 139298 new rear

Test - I - OK

" II - A.

1. - on first drop rear sight broke off
2. - OK
3. - OK
4. - OK.

" III - A. 2. on second drop bolt jarred open

" IV - OK

" V - OK

" VI - A.

1. on second & third drops safety was jarred to "ON" position
4. on third drop bolt jarred open

Date Received 5-31-66

Model 700

Description

Barrel Length
Caliber
Type of Feed
Other

139413
.243
bolt
New P.M. Ser. # 2

Date 6-2-66

Firing Pin Indent (Inches)
Before

1	.018
2	.018
3	.018
4	.018
5	.018
Avg of 5	.018
Max.	.018
Min.	.018
Ev.	0

Firing Pin Indent
After

1	.019
2	.019
3	.0185
4	.0185
5	.019
Avg of 5	.0188
Max.	.019
Min.	.0185
Ev.	.0005

Trigger Pull (lbs.)
Before

1	5.00
2	4.75
3	5.00
4	4.75
5	4.75
Avg of 5	4.85
Max.	5.00
Min.	4.75
Ev.	.25

Trigger Pull (lbs.)
After

1	4.75
2	4.75
3	4.50
4	4.50
5	5.25
Avg of 5	4.75
Max.	5.25
Min.	4.50
Ev.	.75

Wbl. - # 139413 new gear.

this gear is very loggy

Test - I - OK

" - II - OK

" - III - OK

" - IV - OK

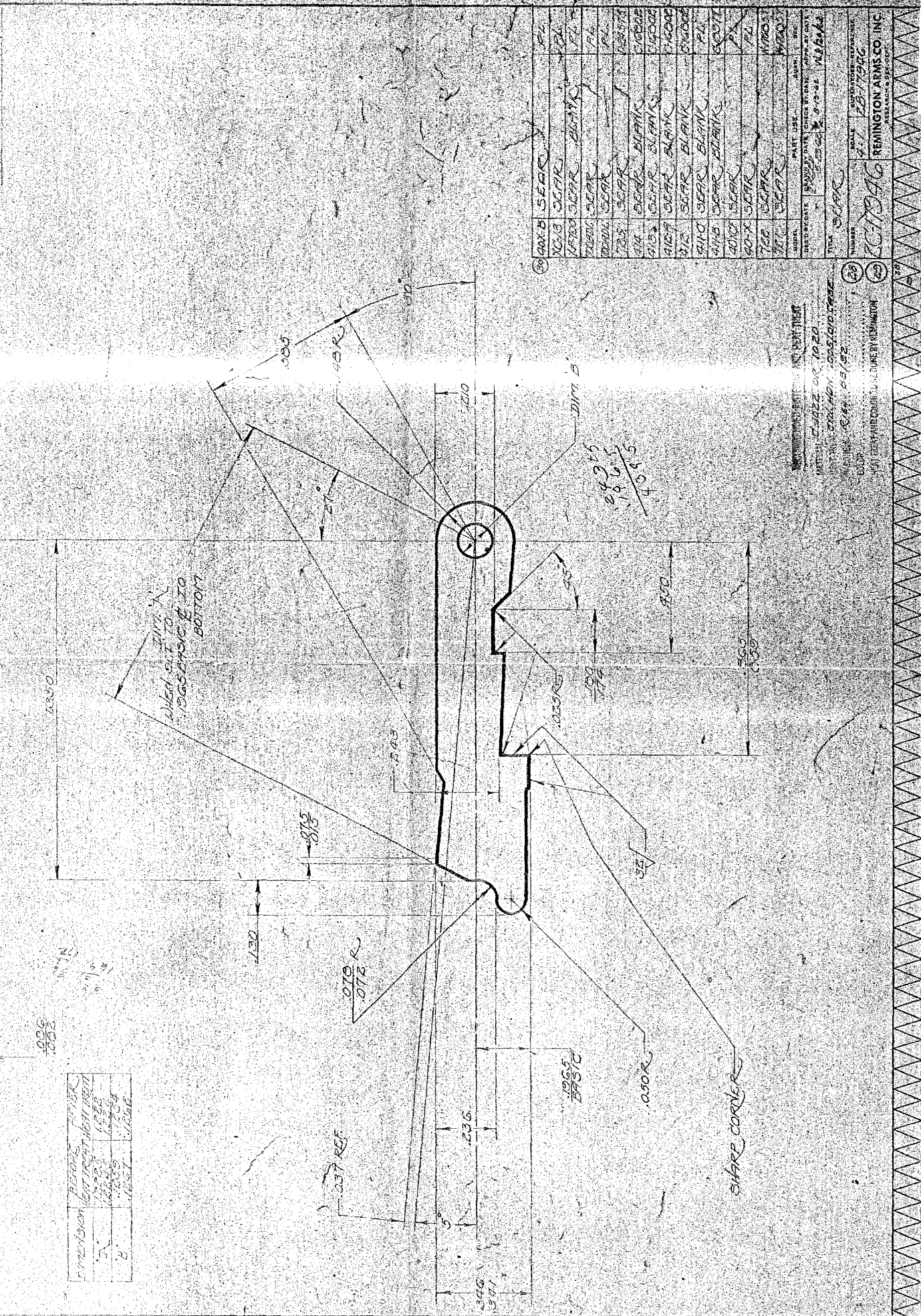
" - V - OK

" - VI - A.

1. - on first & third drops saftery moved
to "ON" position.

DATE	WAS	ALTERNATIONS
28 JUN 62	28 JUN 62	28 JUN 62
29 JUN 62	29 JUN 62	29 JUN 62
30 JUN 62	30 JUN 62	30 JUN 62
1 JUL 62	1 JUL 62	1 JUL 62

CONT. SHALL ALSO SHOWING, AND THE FOLLOWING
 UNLESS OTHERWISE NOTED, TOLERANCES
 ON FRACTIONAL DIMENSIONS ARE:
 ON ANGULAR DIMENSIONS ARE:
 FINISHES ARE DESIGNATED BY ROUTING
 SQUARE, REAM, MICROFINCH, ROUGHNESS
 LESS ACCEPTABLE, UNLESS OTHERWISE
 SPECIFIED. FINISH ROUGHNESS TO BE
 1/2 OR BETTER



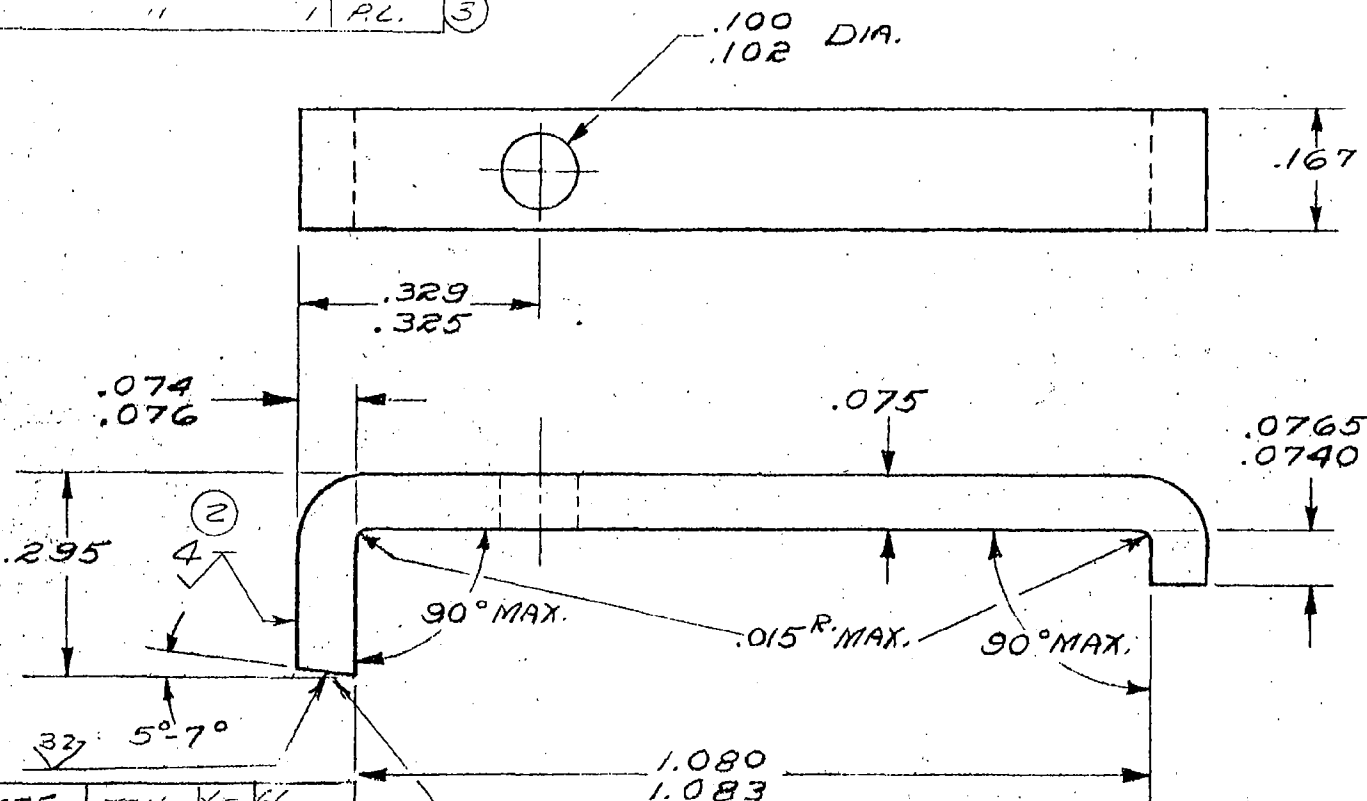
DATE	WAS	ALTERNATIONS
28 JUN 62	28 JUN 62	28 JUN 62
29 JUN 62	29 JUN 62	29 JUN 62
30 JUN 62	30 JUN 62	30 JUN 62
1 JUL 62	1 JUL 62	1 JUL 62

REVISIONS
 1. CHANGE OR 1020
 2. CHANGE OR 1020
 3. CHANGE OR 1020
 4. CHANGE OR 1020
 5. CHANGE OR 1020
 6. CHANGE OR 1020
 7. CHANGE OR 1020
 8. CHANGE OR 1020
 9. CHANGE OR 1020
 10. CHANGE OR 1020
 11. CHANGE OR 1020
 12. CHANGE OR 1020
 13. CHANGE OR 1020
 14. CHANGE OR 1020
 15. CHANGE OR 1020
 16. CHANGE OR 1020
 17. CHANGE OR 1020
 18. CHANGE OR 1020
 19. CHANGE OR 1020
 20. CHANGE OR 1020

NUMBER A-16719		REMINGTON ARMS CO. INC. RESEARCH & DEV. DEPT.	
SCALE 4:1	REFERENCE A-19461		
TITLE CONNECTOR			
DES. BY DATE PY 7-30-57	DRN. BY DATE R.S. 8/13/57	CHK. BY DATE 8-13-57	APP. BY DATE 8-13-57
FOR DETAILS, SEE PROCESS RECORD			
MODEL	PART USE	QUAN.	SEE
40X	TRIGGER CONNECTOR		
40XCF	TRIGGER CONNECTOR	1	P.L.
40X-B	"	1	P.L.

DO NOT SCALE THIS DRAWING: WORK TO FIGURES
UNLESS OTHERWISE NOTED. TOLERANCES
ON DECIMAL DIMENSIONS ARE $\pm .005$
& ON FRACTIONAL DIMENSIONS $\pm \frac{1}{64}$
& ON ANGULAR DIMENSIONS $\pm 00^{\circ}30'$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S) MICRO-INCH ROUGHNESS
VALUES AND ARE THE MAXIMUM ROUGH-
NESS ACCEPTABLE. UNLESS OTHERWISE
SPECIFIED. FINISH ROUGHNESS TO BE
 $125 \sqrt{V}$ OR BETTER.

MATERIAL AND FINISH
C1022 OR EQUIV.
CYANIDE .005 CASE
R15N 88-92 (4)
NONE



5	ADDED NOTE	5716	YF	6/23/61
4	ADDED HT SPEC.	5149	DEB	5-20-63
3	ADD USE 40X-B	5120	DEB	1-24-63
2	327	"	"	"
1	ADDED 40X C.F.	3941	DEB	7-15-60
ALT.	WAS	REFERENCE	BY	DATE

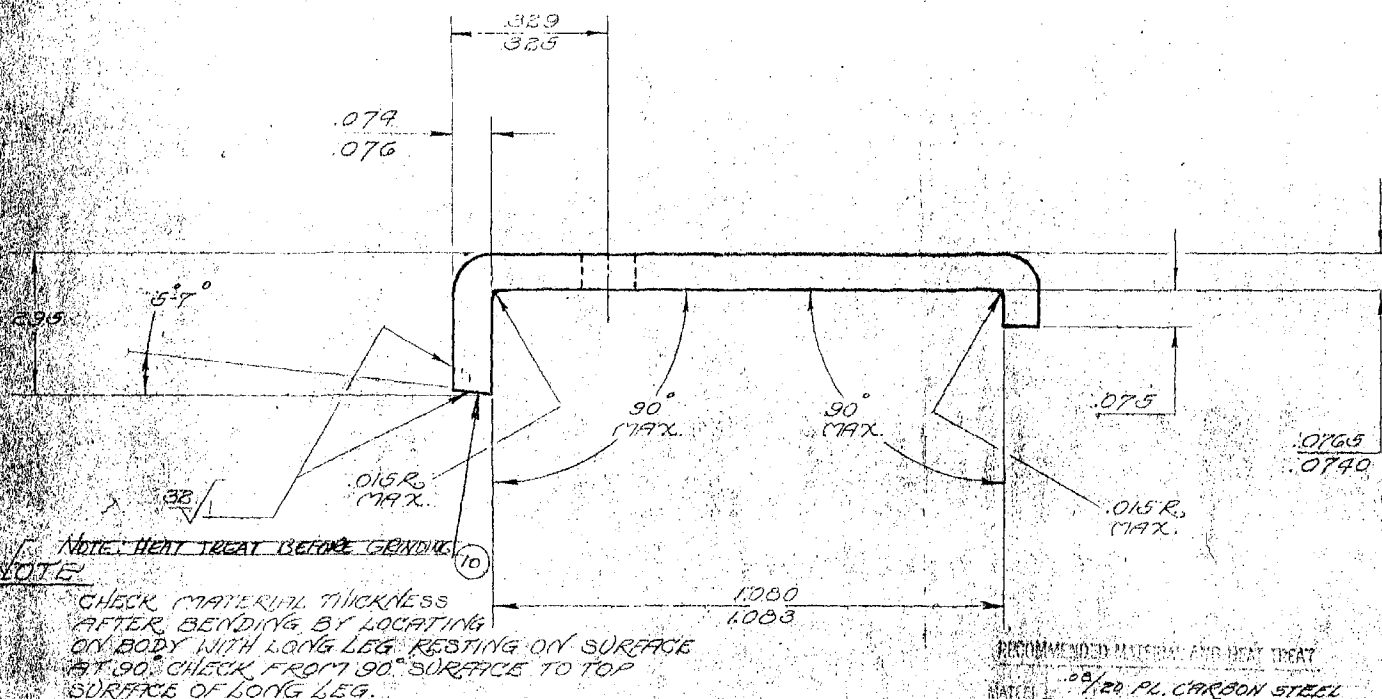
(5) NOTE: HEAT TREAT BEFORE GRINDING.

NOTE: THIS PART TO BE CHROME-PLATED.
NOTE: CHECK MATERIAL THICKNESS AFTER BENDING
BY LOCATING ON BODY WITH LONG LEG RESTING ON
SURFACE AT 90° CHECK FROM 90° SURFACE TO
TOP SURFACE OF LONG LEG.

A-16719

(5)

FBI-REV. 2



ALTERATIONS

S	LET.	WAS	REFERENCE	BY	DATE
	7	REDRAWN	4652	16	3-3-60
	8	A-19461			
	9	FILE HARD	5149	16	4-24-60
	10	ADDED NOTE	5716	16	4-23-60
	11	ADDED USE	6479	DD	3-16-60

11	100 VAE	TRIGGER CONNECTOR		P.L.
	700 700 700	TRIGGER CONNECTOR		
	700 700	TRIGGER CONNECTOR		
	725	TRIGGER CONNECTOR		
	722	TRIGGER CONNECTOR		
	721	TRIGGER CONNECTOR		
	MODEL	PART USE	QUAN.	SK
	DES'D BY DATE	DRAWN BY DATE	CHECK BY DATE	APPR. BY DATE
		W. B. D. 9-8-62	M. G. G. 9-8-63	W. B. D. 11/10/62
	TITLE			
	CONNECTOR			
	NUMBER	SCALE	S	
	B-19461	4:1	A-19461	
	REMINGTON ARMS CO. INC.			
	RESEARCH & DEV. DEPT.			

Ilion, New York
July 11, 1966

MEMORANDUM

TO: C. B. Workman

FROM: A. A. Hugick

POWDER METAL ENDURANCE TESTING

A 100,000 cock-and-fire dry cycle test was run on the M/700 FN sear in the Measurement Lab dry cycle machine. The hardness of this sear was measured as 88.5 - R15N. Initial radius at the connector edge was measured as .0013" on the optical comparitor. The radius was measured as .0033" at the dry cycle test completion. All dry cycle testing was conducted with the sear lubricated with lubriplate.

Initial test trigger pull as adjusted by production was 4.55 lbs. During the dry cycle testing two firing pin tips broke. (20,000 and 60,000).

AAH:c

TITLE OF PROJ. *PM SEAR ENDURANCE TEST*

PROJ NO

SUBJECT

WORKS

COMPUTER

COMC

DATE

6/15

1966

1) GUN TESTED - M700 with new PM sear
 A) Trigger pull at start of test

1 - 4.50
 2 - 4.50
 3 - 4.50 *avr.*
 4 - 4.75
 5 - 4.75

20000 - Firing pin broke during the 20000 cycles. Sear showed negligible rounding after inspection. *avr. optical comparison*
 New firing pin assembly
 40000 - Sear ok

61000 - Sear condition of - little change over 60000 cycles - firing pin ok
 40000

Trigger pull
 (avr. of 5)
 1 - 3.75
 2 - 3.75
 3 - 3.75
 4 - 3.50
 5 - 3.75

82000 - Broken firing pin tip over a period of 40000 cycles *from 60000 to 82000*
 20000

100000 - Sear ok



M100 PIN SEAR
100,000 COCK-AND-PISTON
DRY CYCLES - WELL
LUB.
88.5 - R15N
48.5 MEAS. RC.
10013 RAD. AT
COM MOTOR - INITIAL
10033 RAD. AT
COM MOTOR - TERMINAL
6-27-66 AAM.

cc: W.C. Leach
C.H. Morse
~~H.H. Walker~~
~~J.W. Brooks~~
~~H.J. Waterman~~
H.D. Kelly

Ilion, New York
June 24, 1965

MEMORANDUM

TO: C. B. Workman

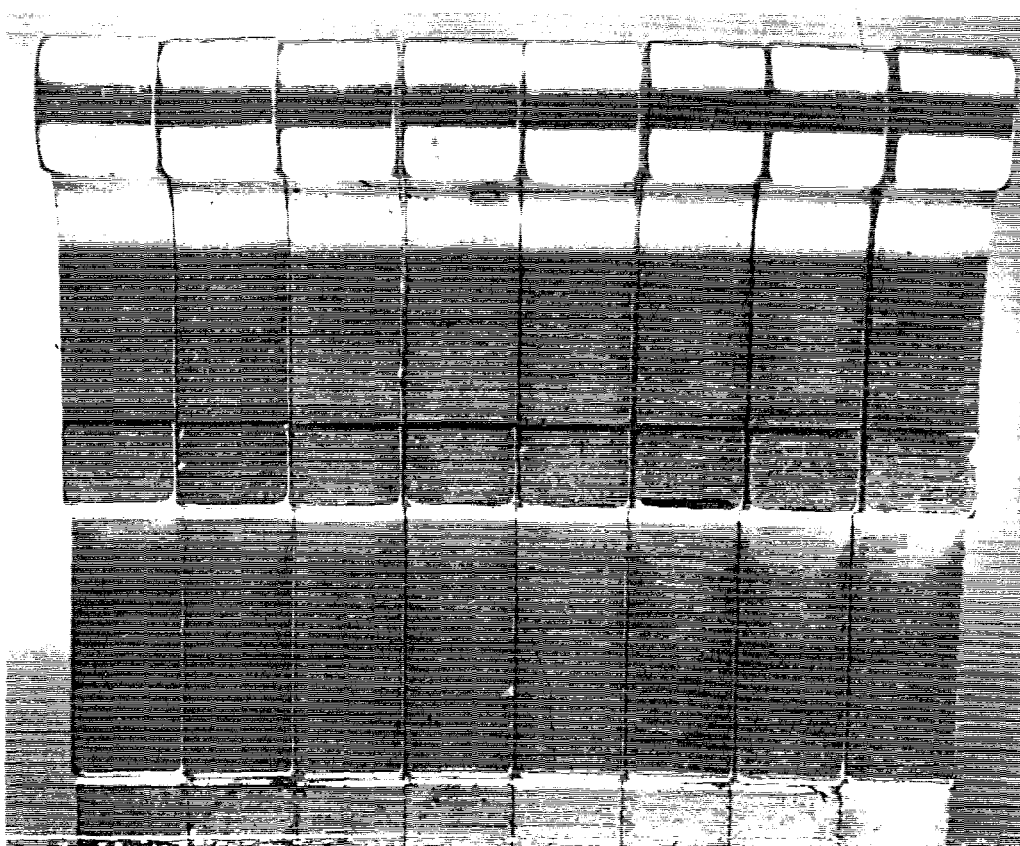
FROM: A. A. Bigick - W. K. Curry

Model 700 IMPROVED POWDER METAL SEARS

Six M/700 rifles with powder metal sears were cock-and-fire dry cycled 30,000 cycles each in the Measurement Lab dry cycle machine for the purpose of establishing M/700 firing pin dry cycle life. The included test sears had a radius of approximately .003" on the connector surface edge when received from production. The average sear component weight was measured as 9.4521 grams. The average measured RC hardness was approximately 50 RC. All dry cycle testing was conducted with the sear well lubricated.

Enclosed is a photograph which best illustrates the lack of sear wear at the connector and cocking cam surfaces of the M/700 sear.

AM:KIC
Enc.

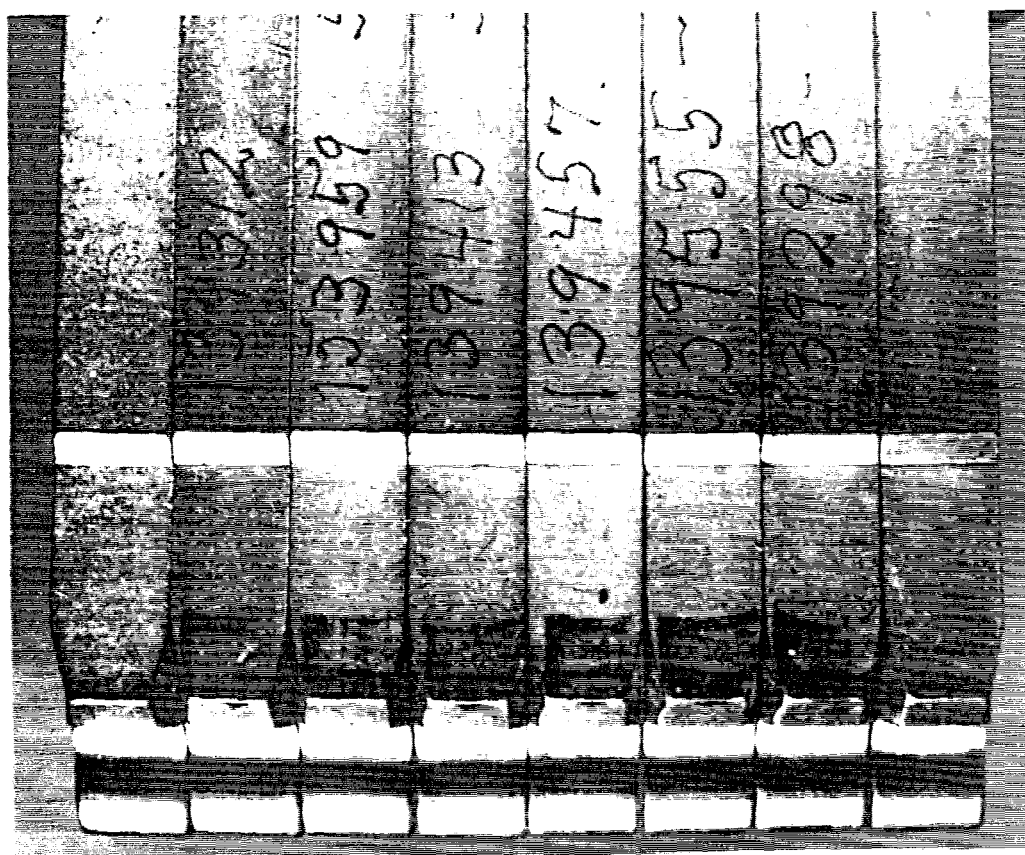


AAH:WMC

MODEL 700 SEAR TEST

CHROME PLATED POWDER METAL SEAR

30,000 Cock and Fire Dry Cycle



6-7-66



TITLE OF PROJ

M700

PROJ NO

SUBJECT

FLASH CHROME PLATED PM

WORKS

SEAR TESTING

COMPUTER AAH

DATE 6-8-66

19

SEAR NUMBER	TOTAL NUMBER OF CYCLES	SEAR RAD. AT CONNECTOR	SEAR COMPONENT WT	AVER. TRIGGER PULL AT END OF DRY CYCLING
153959	30,000	.0045	9.3685 gr	5.60 LBS
139298	30,000	.0035	9.4080 gr	7.70 LBS.
139413	30,000	.0050	9.4200 gr	4.60 LBS.
139555	30,000	.0068	9.3880 gr	5.70 LBS.
139312	30,000	.0029	9.9140 gr	5.35 LBS.
139457	30,000	.0053	9.431 gr	5.50 LBS.
NONE	000	.0035	7.385 GRAMS	
AVE		.0045	9.4021 GRAMS	

Ilion, New York
June 13, 1966

MEMORANDUM

To: C. B. Workman

From: A. A. Hugick - W. M. Curry

MODEL 700 COCK-AND-FIRE DRY CYCLE FIRING PIN LIFE

Each of
M/700 cock-and-fire dry cycle life testing was run in the Measurement Lab dry cycle machine. Six M/700 actions were subject to a 30,000 dry cycle test. One firing pin tip failed at 20,000 dry cycles. The M/700 dry cycle test guns have been returned to the tester for further examination of parts.

Enclosed are the dry cycle testing observations and comments.

AAH:WMC:c
Ency
6/8/66

6/8/66
The test of one M/700 with latent wear (PA)
showing pin broke some place between 0-2000.
New firing pin put in & broke between 55,000
& 60,000. New firing pin put in & still ok
at 100,000.

P

WORK REQUEST

DATE REQUESTED 3-9-66 WORK ORDER E0262
 DESIGNER OR ENGINEER J W Bork
 MODEL M700 CAL. OR GAUGE — BARREL TYPE —

TYPE OF TEST

NEW DESIGN ✓ DESIGN CHANGE —
 DRY CYCLE ✓ ACCURACY — HANDLOADING — STRESS —
 PRESSURE — MUZZLE VELOCITY — FUNCTION — PHOTOS —
 EVALUATION — BOLT VELOCITIES — OTHER —

REPORT REQUIRED

FORMAL — INFORMAL — TEST RESULTS ONLY ✓

TEST OBJECTIVE

Firing Pin evaluation, 5 ear (chrome) + connector (chrome)
 stand

1. check trigger pull.

5000 cycles

1. check Firing Pin joint for cracking or breaking.
 2. visual check of 5 ear.

10000
 1. Report 5000 cycle checks

15000

1. Report above checks

20000

1. Report above checks

25000

1. Report above checks

* Drop test after completion
 of dry cycle

GUNS REQUIRED

1 grill 39418 new Fire control J. Firing Pin area
 ribs from previous dry cycle of M ear test.

TEST COMPLETION DATE — SIGNED —

M700 Firing Pin Evaluation
 Test of M700 firing pin assembly +
 chrome seen by dry cycling

PROJECT

WORK

DATE

3/21

1966

This test was made on #139413 M700 to determine damage to the firing pin (breakage) and durability of the P.M. chromed gear. The gear gear cocked and fired at a rate of one cycle every two seconds with inspection of the firing pin + gear every 5000 cycles.

BEGINNING OF TEST

1- Fire trigger pull taken at start of test.

6.25

The fire control was cleaned
 + deburred before test.

6.25

ave-6.30

6.25

6.50

2- The gear stuck down at 4,750 cycles (cleaned + oiled fire control).

6.25

3- 5000 cycles: gear shows light wear but no deformation.

On examination of the firing pin the shoulder shows an uneven seat in the front of the bolt body. The firing pin tip shows heavy chipping against the firing pin hole.

4- 5,370 cycles: cocking cam had to be lubricated because of excessive force required to cock the action. (dry cycle machine jammed)

5- Shoulder of bolt has picked up small pieces of metal and seats unevenly in bolt body. Firing pin tip shows increased rubbing around the tip.

TITLE OF PROJ

M700 Firing Pin Evaluation Test

SUBJECT

COMPUTED BY

WMC

3/21

1966

11,680 CYCLES

6 - Action failed to cock due to excessive wear on sear spring cam; replaced bolt body and took trigger pull. 5.25

5.25

5.00 ave. - 5.25 lbs

5.50

5.25

7) 15,000: The firing pin assembly seats more evenly in the sear bolt body. The area around the tip shows little additional wear. No change in condition of the sear.

8-20,000: The magnifying press shows no cracks; visual inspection the same. The sear shows little change over 15,000 cycles.

9 - 25,000: A second magnifying inspection shows no cracks. A visual inspection indicates a very small place in the tip of the firing pin which looks ready to chip.

Trigger pull at 25,000 cycles

4.25

4.50

4.75 Ave - 4.60 lbs.

4.75

4.75



M 700 Firing Pin evaluation Test

PROJ NO.

WORK

COMPUTER

WMC

DATE

3/21

1966

Summary:

The M 700 firing pin assembly under test showed no other faults than already mentioned and no cracks or breakage could be located by the magnifying glasses or by visual inspection under the low power microscope. The rear area of gear seemed to be up the last 150 of the firing pin tip. One other change seemed when the recip. bolt made a different seat on the firing pin shoulder. The second bolt was a more even seat.

Other than light pitting the rear seems in good condition, however the trigger pull decreased 1.70 lbs in the 25,000 cycles.

Firing Pin Evaluation Test

PROJECT NO.

PROJ NO.

SUBJECT

WORKS

COMPUTER

CUMC

DATE

5/1/66

19

Continuation of firing pin dry cycle

Guns 139555

Start of test (trigger pull)

5.0

5.0

5.0

5.5

5.25

Ave. 5.15

5000 - Wear spots in the usual three places
have shown up, as well as the gun assembly

rubbed rubbed
bright spot on shoulder

Gun ok

10,000 Wear spots have increased slightly
on firing pin assembly

Gun ok

wear
wear

15,000 Rubbed spots don't show much increase
over 10,000 cycles. Rubbed area in front
of shoulder shows slight enlargement.

more wear
wear

Gun shows normal wear

shoulder area same
wear bright

20,000 increased wear on parts of pin originally
showing wear.

increased wear

TITLE OF PROJ.

M700. Firing Pin Evaluation

PROJECT

DATE

COMPUTER

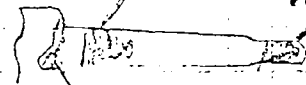
WMC

DATE

5/4/66

15

25,000 No additional wear visible around the tip of pin. Ruptured section ahead of shoulder has light red mark. wear no visible increase



mark

30,000 No failures; magnifying process finds no mark

No excessive wear on rear

Average of 5 trigger pulls 5.70 lbs

*Note increase of trigger pull on this egress in contrast to the usual decrease over the 30,000 cycle test.

TITLE OF PROJECT

M700 Firing Pin Evaluation Test

PROJ NO.

DATE

WORKS

COMPUTER

WMC

DATE

4/20

19

66

Continuation of firing pin evaluation test
 Trigger pull (start of test) GOW# 139312

5.5

5.0

ave. 5.45 lbs

5.5

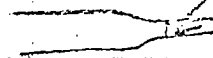
5.75

5.5

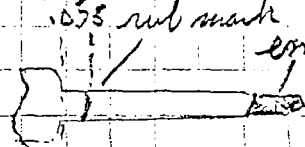
Cocking cam + out side bolt surface lubricated

5000 - light wear around firing pin tip

Seal OK



10,000 Metal rubbing, increasing around firing pin tip. Rubbed spot shows about .075 of shoulder

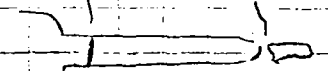


Seal OK

15000 - No noticeable change in wear condition

20000 - Tip of the pin broke ground the rubber portion caused by firing pin hole

rub mark break



Seal has no excessive wear
 20,000 - end of test (Trigger pull, ave. of 5)

5.35 lbs

TITLE

M700 Firing pin Operation test

PROJ NO.

DATE

COMPUTER

WMC

WORK

DATE 5/24/66 19

Gun # 139298

Start of test (trigger pull)

6.00

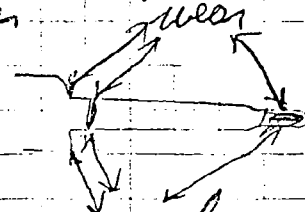
5.75

5.50

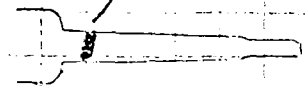
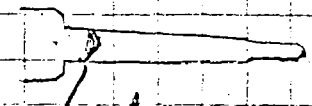
ave 5.85

6.00

6.00

5000 - beginning of spot on tip shoulder +
100 in front of shoulder

10000 - Slight increase over 5000 cycles

15000 Wear increased forward of shoulder slightly
increase20000 Wear increased forward of shoulder; tip +
shoulder show a very slight increase in wearincreased wear area
mostly on one side25000 perceptible increase in wear 100 forward of
shoulder

TITLE OF DRAWING

M700 Firing pin Evaluation Test

AUTHOR

DESIGNER

WORKS

COMPUTER

DATE

15

30000 - no breakage - magnaflex indicator no
cracks.

Trigger pull (ave of 5) - 6.25
7.58 ave 7.7
8.00
8.75
8.00

TITLE OF PROJ.

M700 Firing pin Collection test

PROJ. NO.

SUBJECT

WORK

COMPUTER

DATE 4/18/66 19

Continuation of firing pin & wear dry cycle test (gun # 153545)

Triggers pulled before start of test.

6.75

6.00 Ave. 6.15 lbs

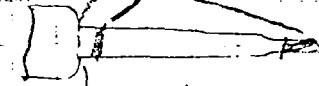
6.25

5.75

6.00

5000 - all normal wear spots replaced bright

lean ok

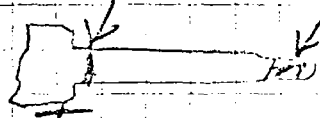


pin seat wear bright

10,000 - all wear spots increasing

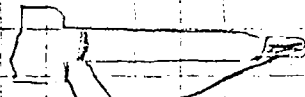
lean light up

no deformation



15000 Little visible increase over 10000 cycle
Wear has occurred in the same places
as in the other tests

lean ok



visible wear spots

(no increase over 10000)

11700 *Pin penetration test*
continued Gun # 153539

PROJ NO

WORKS

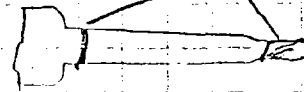
COMPUTER

DATE

19

20000 - *Heads up ground pin tips + in front*
of shoulder, base increased *base increase*

Seal brightened but
shows no deformation.



25000 - *No cracks no weight change in*
the last 5000 cycles
Seal shows no deformation

30,000 - *End of test with no failure of*
firing pin or seal

Triggers pull are at
end of test - 5.60 lbs.

REMINGTON ARMS COMPANY, INC.
ENGINEERING DEPARTMENT

Firing Pin Evaluation Test

CONE

4/1/66

This is a dry cycle test to determine the strength of the firing pin assembly against wear for 3000 dry cycle firing. The guns used in this test shall be correct and fired by a machine once every 2 seconds. The rear assembly will also be checked for undue wear.

GUN # 139467

Trigger pull before test:

5.75 Ave. - 5.75

6.00

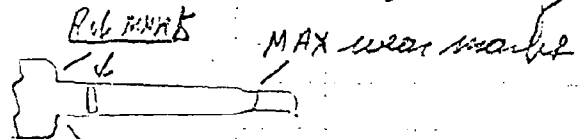
5.50

6.25

6.25

5000 cycles - no scuffing of firing pin, light wear around the tip of firing pin, the only sign of wear seat shows bright spots but no wear.

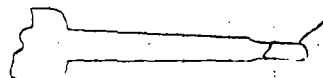
10,800 - Tip shows scuff marks, area of firing pin seat shows wear but noticeable bright marks



NOTICEABLE ROUNDING HERE

The seat is only rubbed bright in area of contact with no excessive wear.

15,200 - Tip shows heavy metal scrubbing, other area of wear show no metal wear
10800



No excessive wear to seat

M 700 Firing Pin Evaluation

G# 139457

COMPUTER

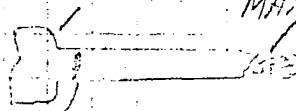
RMC

4/7/66

20 300 cycles increasing wear around the
firing pin tip shoulder, area notes little
change

NO CHANGE

MAX. WEAR

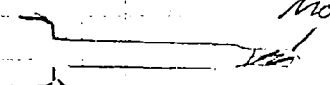


NO CHANGE

No excessive wear to rear

25,000 cycles wear around firing pin tip, looks
about the same as 20 300 cycles. Slightly
has formed a light circle around the seating
area

no visible increase of
wear area.



Ringed portion

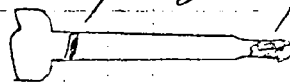
Spear shows more galling on the left top
than on other exposed parts.

rubbed spot



30 000 - Magnaflex project shows no cracks;
visual inspection - no cracks

galling galling



Little change vs looks over 25000 cycles
No visible change in wear
Trigger Pull (end of test)

Ave. of 5 - 5.5 lbs

TITLE OF PROJ

Firing Pin Evaluation Test

PROJ NO.

DATE

COMPUTER

WMC

DATE

4/1/66

10

This is a dry cycle test to determine the strength of the firing pin assembly against breakage for 30,000 dry cycle firing. The gun used in this test will be correct and fired by a machine once every 2 seconds. The rear assembly will also be checked for undue wear through test. Please note.

GUN # 139457

Trigger pull before test: 5.75

6.00

Ave. - 5.75

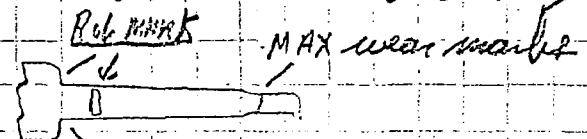
5.50

6.25

6.25

5000 cycles - no scuffing of firing pin. Light wear around the tip of firing pin. The only sign of wear. Scar shows bright spots but no wear.

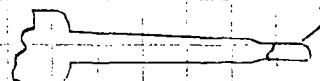
10,800 - Tip shows scrub marks + area of firing pin seat shows wear but noticeable bright marks



NOTICEABLE ROUNDING HERE

The scar is only rubbed bright in area of contact with no excessive wear.

15,200 - Tip shows heavy metal scuffing; other area of wear show no increase but
10800
excess wear



No excessive wear to scar

TITLE OF PROJ. M 700 Firing Pin Cocking

SUBJECT G# 139457

COMPUTED BY WMC

DATE 4/7/66

20,300 cycles magnifying glass around the firing pin tip shoulder, and note little change

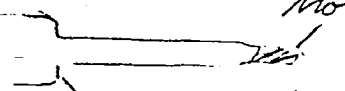
NO CHANGE MAX. WEAR



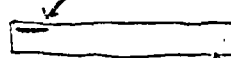
No excessive wear to rear

25,000 cycles wear around firing pin tip, looks about the same as 20,300 cycles. Shoulder has formed a light circle around the seating area

no visible increase of wear area

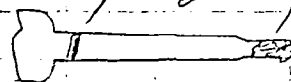


Ringed portion
Sear shows more galling on the left top than on other exposed parts.
rubbed spot



30,000 - Magnifying glass shows no cracks; visual inspection - no cracks

galling rubbing



Little change to look over 25,000 cycles
No visible change in sear
Trigger Pull (end of test)

Ave. of 5 - 5.5 lbs

WORK REQUESTDATE REQUESTED 3-9-66 WORK ORDER E0262DESIGNER OR ENGINEER J W BrooksMODEL M700CAL. OR GAUGE —BARREL TYPE —TYPE OF TESTNEW DESIGN ✓DESIGN CHANGE —DRY CYCLE ✓ACCURACY —HANDLOADING —STRESS —PRESSURE —MUZZLE VELOCITY —FUNCTION —PHOTOS —EVALUATION —BOLT VELOCITIES —OTHER —REPORT REQUIREDFORMAL —INFORMAL —TEST RESULTS ONLY ✓TEST OBJECTIVEFiring Pin evaluation, 5 ear (chrome) + commata (chrome)
Start

1. check trigger pull

5000 rd

1. check Firing Pin joint for cracking or breaking.

10000 2. visual check of 5 ear

1. Repeat 5000 cycle check

15000

1. Repeat above check

20,000

1. Repeat above check

25000

1. Repeat above check

GUNS REQUIRED1 rifle serial 39418. new Firing Pin control & Firing Pin assembly
rifle from previous dry cycle for rear test.TEST COMPLETION DATE —SIGNED —

TITLE OF PROJECT: M 700 Firing Pin Evaluation

PROJ NO

SUBJECT: Test of M700 firing pin assembly + chrome seal by dry cycling COMPUTER WMC

WORKS

DATE 3/21 19 66

This test was made on #139413 M700 to determine damages to the firing pin (bushings) and durability of the PM, chromed seal. The gun was cocked and fired at a rate of one round every two seconds with inspection of the firing pin + seal every 5000 cycles.

BEGINNING OF TEST

1- Five trigger pulls taken at start of test.

6.25

The fire control was cleaned + deburred before test.

6.25

ave-6.30

6.25

6.50

6.25

2- The seal stuck down at 4,750 cycles (cleaned + oiled fire control).

3- 5000 cycles: seal shows light wear but no deformation.

On examination of the firing pin the shoulder shows an uneven seat in the front of the bolt body. The firing pin tip shows heavy chopping against the firing pin hole.

4- 5,370 cycles: cocking cam had to be lubricated because of excessive force required to cock the action. (dry cycle machine jammed)

5- Shoulder of bolt has picked up small pieces of metal and is uneven in bolt body. Firing pin tip shows increased rubbing around the tip.



TITLE OF PROJ.

M700 Firing Pin Evaluation Test

PROJ NO.

SUBJECT

WORK

COMPUTER

20 MC

DATE

3/21

1966

11,680 cycles

6 - Action failed to rock due to excessive wear on cocking cam; replaced bolt body (no. 10111) and took trigger pull.

5.25

5.25

5.00 ave. - 5.25 lbs

5.50

5.25

7) 15,000: The firing pin assembly seats more evenly in the sleep. Bolt body. The area around the tip shows little additional wear. No change in condition of the sear.

8-20,000: The magnifying process shows no cracks; visual inspection the same. The sear shows little change over 15,000 cycles.

9-25,000: A second magnifying inspection shows no cracks. A visual inspection indicates a very small phase in the tip of the firing pin which looks ready to chip.

Trigger pull at 25,000 cycles

4.25

4.50

4.75 Ave. - 4.60 lbs.

4.75

4.75

TITLE OF PROJ.

M 700 Firing Pin evaluation Test

PROJ. NO.

SUBJECT

WORKS

COMPUTER

WMC

DATE

3/21

1966

Summary:

The M 700 firing pin assembly under test showed no other faults than already mentioned and no cracks or breakage could be located by the magnifying process or by visual inspection under the two water microscopes. The upper area of gear seemed to be on the last 150 of the firing pin tip. One other change seemed when the recip bolt made a different seat on the firing pin shoulder. The second bolt was a more even seat.

Other than light pulling the rear sears in good condition, however the trigger pull decreased 1.70 lbs in the 25,000 cycles.

8-2-66

Pm. K. Chadwick

The Firing pin that broke at shoulder was checked for hardness & was ok running as follows

RC 40 RC 20, RC 20, RC 20, RC 20, RC 20

It ran against RC 40 from tip back almost to the shoulder & then it broke at RC 20.

These parts are heat treated only on the points.

The two other Firing Pins that looked cracked from mag. malfunctions & under the glasses, one broke & one cracked further when bent. Material is ok. Kelly will run pins if necessary but at this time it does not seem necessary.

M700 SEAR TEST FIRING PIN BREAKAGE AND DRY CYCLE NUMBER

Broken firing pin
139555 ^{PM} - 25,000
- 33,000

FIRING PIN BREAKAGE
TOTAL CYCLES ON GUN

mark
139298 ^{PM} - 21,000
- 21,000

FIRING PIN LAST CHECKED OKAY
TOTAL CYCLES ON GUN

mark
139609 ^{PM} - 21,000
- 21,000

FIRING PIN LAST CHECKED OKAY
TOTAL CYCLES ON GUN

154225 - 10,000
- 10,000

FIRING PIN LAST CHECKED OKAY
TOTAL CYCLES ON GUN

PM
X 139413 - 26,000
- 29,000

FIRING PIN LAST TESTED OKAY
TOTAL CYCLES ON GUN

PM
X 139457 - 30,000
3 rounds El. Shooting 70,000

FIRING PIN LAST CHECKED OKAY
TOTAL CYCLES ON GUN

PM
139312 - 30,000
- 70,000

FIRING PIN LAST CHECKED OKAY
TOTAL CYCLES ON GUN

std. load
X 153959 - 10,000
- 50,000

FIRING PIN LAST CHECKED OKAY
TOTAL CYCLES ON GUN

AAH
2/24/66

M700 SEAR TEST
FIRING PIN BREAKAGE AND
DRY CYCLE NUMBER

PROD. NO.

WORK

DATE

IN

139555	- 25,000	FIRING PIN BREAKAGE	X
	- 33,000	TOTAL CYCLES ON GUN	
139298 OK	- 21,000	FIRING PIN LAST CHECKED OKAY	
	- 21,000	TOTAL CYCLES ON GUN	
139609 OK	- 21,000	FIRING PIN LAST CHECKED OKAY	
	- 21,000	TOTAL CYCLES ON GUN	
154225	- 10,000	FIRING PIN LAST CHECKED OKAY	
	- 10,000	TOTAL CYCLES ON GUN	
139413	- 26,000	FIRING PIN LAST TESTED OKAY	
	- 29,000	TOTAL CYCLES ON GUN	
139457	- 30,000	FIRING PIN LAST CHECKED OKAY	
	70,000	TOTAL CYCLES ON GUN	
139312 OK	- 30,000	FIRING PIN LAST CHECKED OKAY	
	- 70,000	TOTAL CYCLES ON GUN	
153959	- 10,000	FIRING PIN LAST CHECKED OKAY	
	- 50,000	TOTAL CYCLES ON GUN	

John
We should give workman
a test rifle or two with known
firing pins when he tests the
production PPT sears
JHWW

AAH
2/24/66

11-22-65

Mike

Paul Ross

Kelly Chalkin

Clarke

Adam

Nir Dahan

9 AM Monday

Nov. 22

1. Release Chroned P.M. Seers to production

If there are no more tests to run. For M700+66

2. A. When new parts are run with corrected dies

test will be run to see if S.N.B. can be included.

B also test parts impregnated with oil as one of tests to determine if sears can be used without

chrome plate.

C. section parts with discolored surface to see what discolored surface is.

Kelly to get new P.M. Seers made up & tumbled & dated. Decision as to what is to be done will be made at that time. Opinion seems to be that sear is ok & can be released to production however it should be kept track of since it is new to make sure there are no complaints because of this. S.N.B. because of P.M. chrome

RD 6565

EST. #1502ESTIMATED SAVINGS & RETURN ON INVESTMENTPROPOSED ONE PIECE POWDER METAL BLANK
M/XP-100, 600 & 700 SEAR-SAFETY CAM ASSY

		<u>1965 Year of Operation</u>		
		<u>PRESENT</u>	<u>PROPOSED</u>	<u>PROPOSED</u>
<u>Quantity Forecast</u>		<u>(2) PIECE</u>	<u>(1) PIECE</u>	<u>(1) PIECE</u>
		<u>CONSTR.</u>	<u>STAMPING</u>	<u>POWDER</u>
	XP-100 1,200			<u>METAL BLA</u>
	M/600 15,000		<u>PROPOSED</u>	<u>PROPOSED</u>
	M/700 32,000	<u>48,200</u>	<u>"A"</u>	<u>"B"</u>

OPERATING COSTS

Purchased parts	\$ 2,750	\$ 1,620	\$
Raw material			400
Direct Labor	6,840	4,470	1,190
Industrial Relations @ 33%	2,260	1,490	390
Supplies			
Tool Replacement			
Cutter Grind	680	1,110	1,080
Tool Maintenance			
Maintenance			
Electricity		230	300
Equipment Depreciation @ 10%	-	710	-

Franchise Tax @ 4 1/2% 130 380

\$12,530 \$9,520 \$3,440

SAVINGS IN OPERATING COST

Less: All other expense:

All Other 6.5%; Federal Tax 48%

\$3,010 \$2,090

1,550 4,670

NET SAVINGS

\$1,460 \$4,420

INVESTMENT

Project expenditures	\$ 7,100	\$ -
Manufacturing and working facilities		
Net Change in working capital	(2,000)	(5,450)
Total capital required for this project	\$5,100	\$5,450

RETURN ON INVESTMENT - THIS PROJECT

28.6% NO CAPITAL INVESTMENT

Return on total capital required including	VENDOR TOOLING \$2,400 Y/M TOOLING \$1,600		
research and development and other	OPER. CHGES 3,900		400
operation charges	\$11,400		(8,450)
	12.8%		NET DECREASE
			IN TOTAL CAPITAL

Return on total additional investment after completion of this project

(Subdivision 5)

FG CARLSON
10/15/64

OCT 16 1964

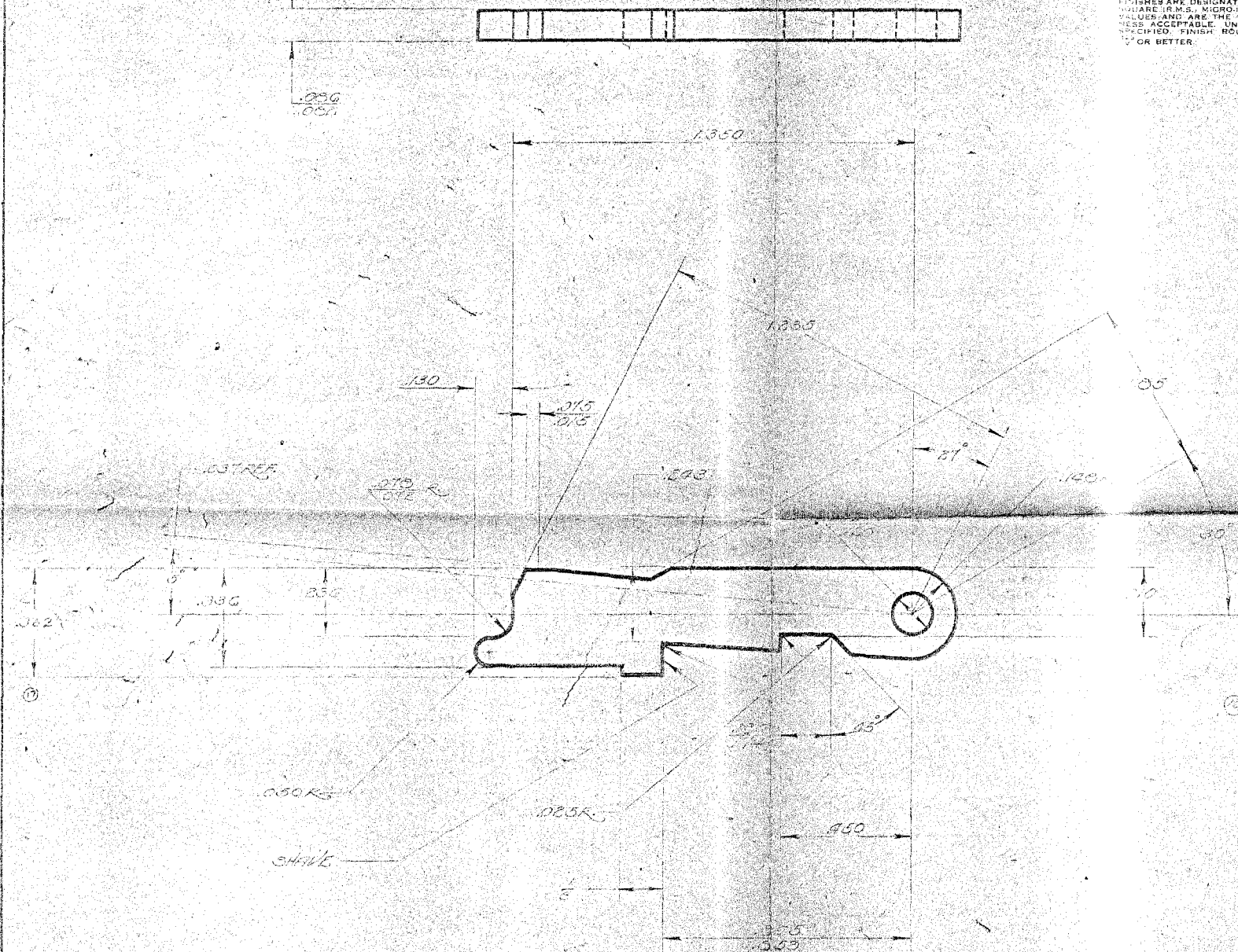
10-11946

DO NOT SCALE THIS DRAWING. WORK TO FIGURES
UNLESS OTHERWISE NOTED. TOLERANCES
ON DECIMAL DIMENSIONS ARE $\pm .005$
ON FRACTIONAL DIMENSIONS $\pm .004$
ON ANGULAR DIMENSIONS $\pm .0030$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S.) MICRO-INCH ROUGHNESS
VALUES. THE MINIMUM ROUGHNESS
IS ACCEPTABLE, UNLESS OTHERWISE
SPECIFIED. FINISH ROUGHNESS TO BE
OR BETTER.

ALTERATIONS				
LET	WAS	REFERENCE	BY	DATE
14	REDROWN	4862	GR	8-14-60
15	1217346	"	GR	"
16	ADVERSE 401-2	5129	LB	1-16-63
17	347	5779	LB	7-22-64

BARBER - PRESALE R 0136317

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER

[illegible]

BARBER - PRESALE R 0136317
R2537305

JUN 2 1965

JUN 2 1965

B-15369

C-1022

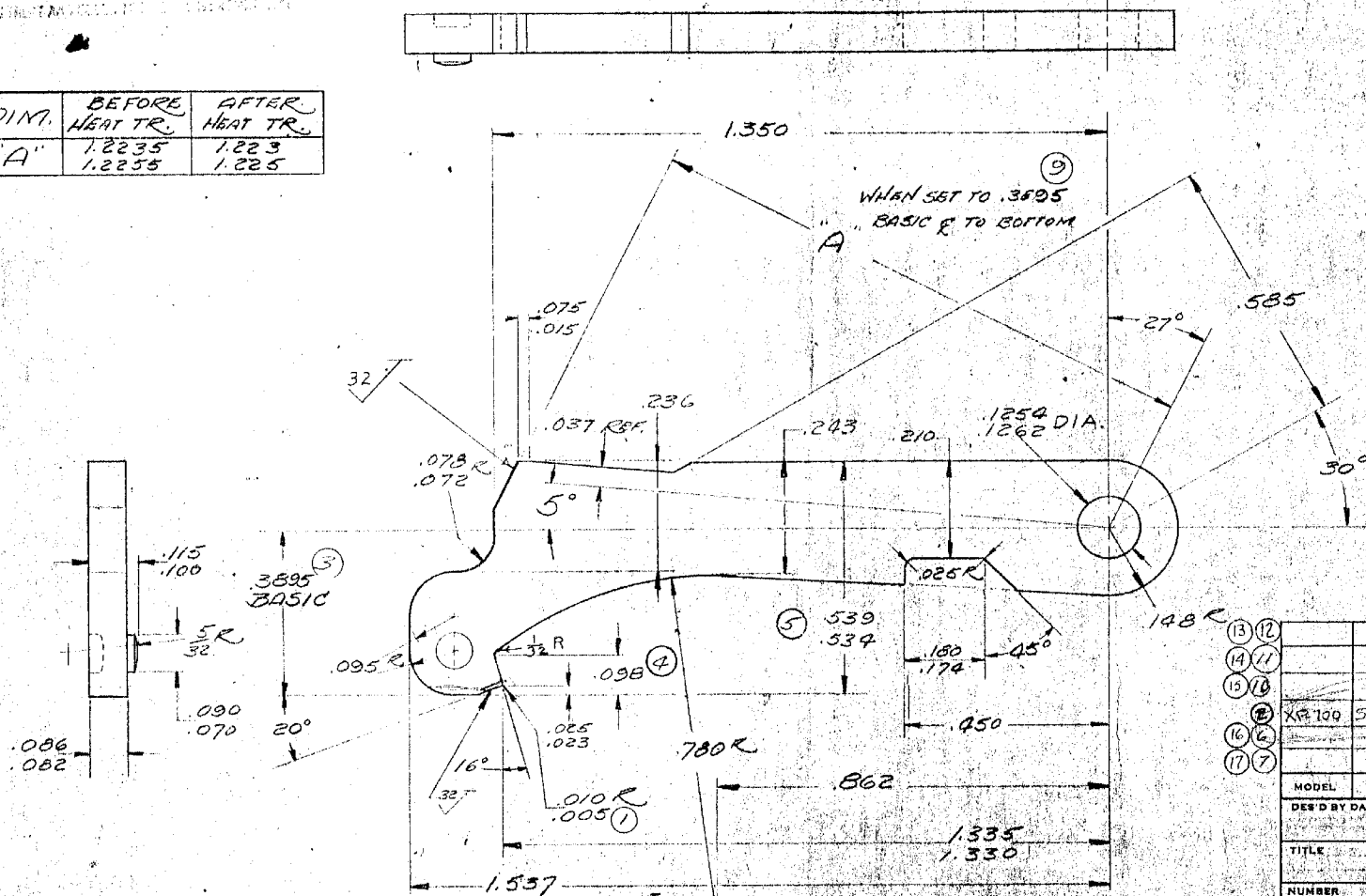
See N-26590

DIM.	BEFORE HEAT TR.	AFTER HEAT TR.
"A"	1.2235 1.2255	1.223 1.225

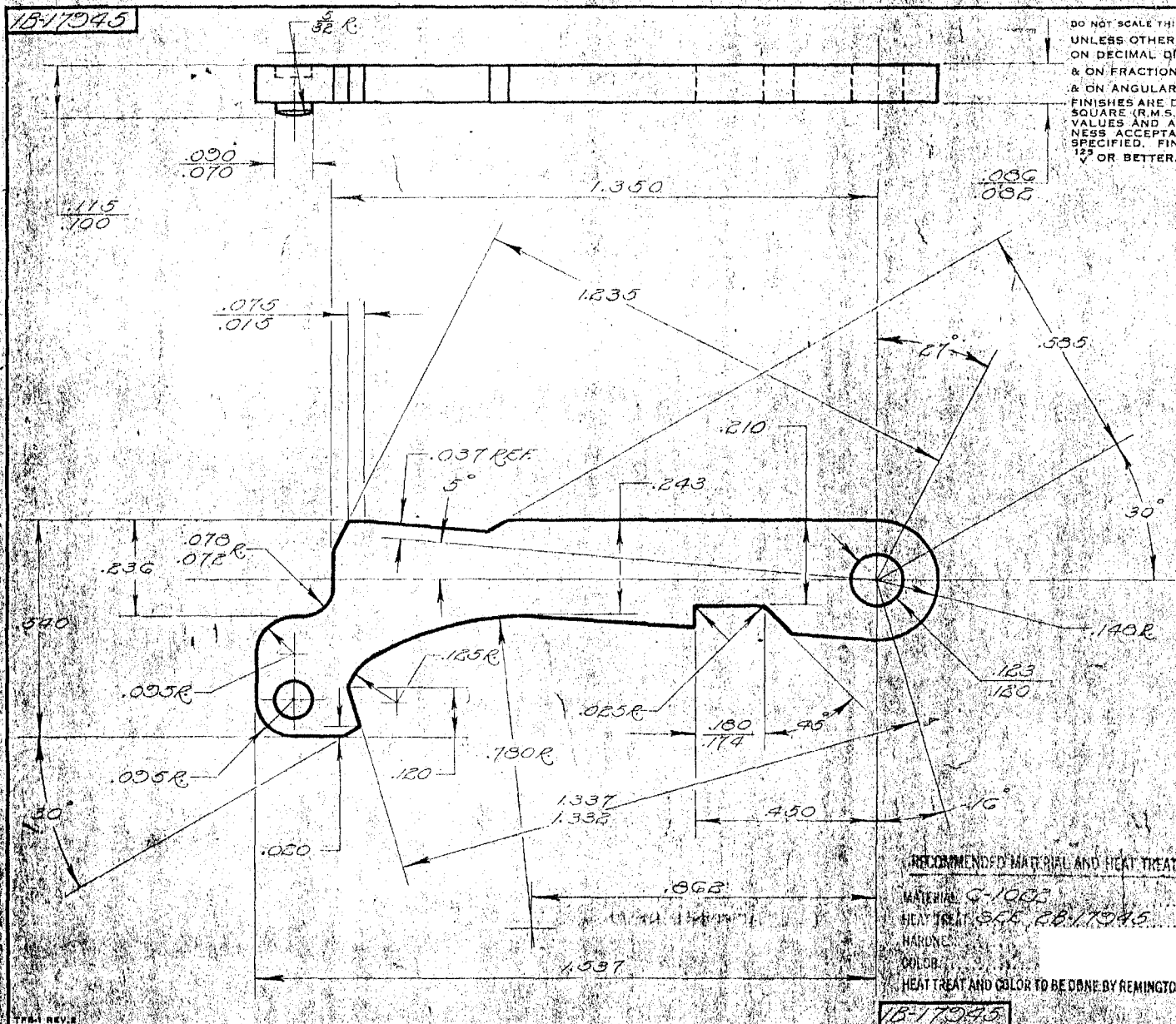
⑧ NOTE
USE BLANK - 78-17945

DO NOT SCALE THIS DRAWING; WORK TO FIGURES
UNLESS OTHERWISE NOTED. TOLERANCES
ON DECIMAL DIMENSIONS ARE $\pm .005$
& ON FRACTIONAL DIMENSIONS $\pm \frac{.04}{16}$
& ON ANGULAR DIMENSIONS $\pm .00430^\circ$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S.) MICRO-INCH ROUGHNESS
VALUES. THE MAIN SURFACE ROUGHNESS
SPECIFIED, FINISH: ROUGHNESS TO BE
120
OR BETTER.

ALTERATIONS				
LET.	WAS	REFERENCE	BY	DATE
1	ADDED 100-E	4445	AB	11/1/44
2	ADDED 100S	4445	AB	10/1/44
3	3815	4445	AB	10/1/44
4	090		AB	10/1/44
5	531/526		AB	10/1/44
6	700 ADL		AB	10/1/44
7	200 A		AB	10/1/44
8	ADDED	4445	AB	10/1/44
9	3815		AB	10/1/44
10	ADDED X-13	4499	AB	10/1/44
11	ADD USE 90X-B	5120	AB	10/1/44
12	ADD USE	6479	DD	3-4-44
13	700 VAE	6509	DD	2/24/44
14	90X-B			
15	600		AT	10/1/44
16	700 ADL		AB	10/1/44
17	700 BDL	6509	DD	2/24/44



13	12						
14	11						
15	10						
16	9	XP-100 SAFETY CAM BLANK					
17	8						
		MODEL	PART USE		QUANTITY	REMARKS	
DES'D BY DATE		DRAWN BY DATE	CHECK BY DATE	APPROVED BY DATE			
		6-22-61	R. J. T. 7-1-61	R. J. T. 7-1-61			
TITLE		SAFETY CAM					
NUMBER		SCALE		SUPERSEDED BY NUMBER			
B-15369		42					
REMINGTON ARMS CO INC							
MURRAY AVENUE							



DO NOT SCALE THIS DRAWING; WORK TO FIGURES
UNLESS OTHERWISE NOTED, TOLERANCES
ON DECIMAL DIMENSIONS ARE $\pm .005$
& ON FRACTIONAL DIMENSIONS $\pm \frac{1}{64}$
AND ON ANGULAR DIMENSIONS $\pm .003^\circ$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S.) MICRO-INCH ROUGHNESS
VALUES. STATE THE MAXIMUM ROUGH-
NESS ACCEPTABLE. UNLESS OTHERWISE
SPECIFIED, FINISH ROUGHNESS TO BE
125
OR BETTER.

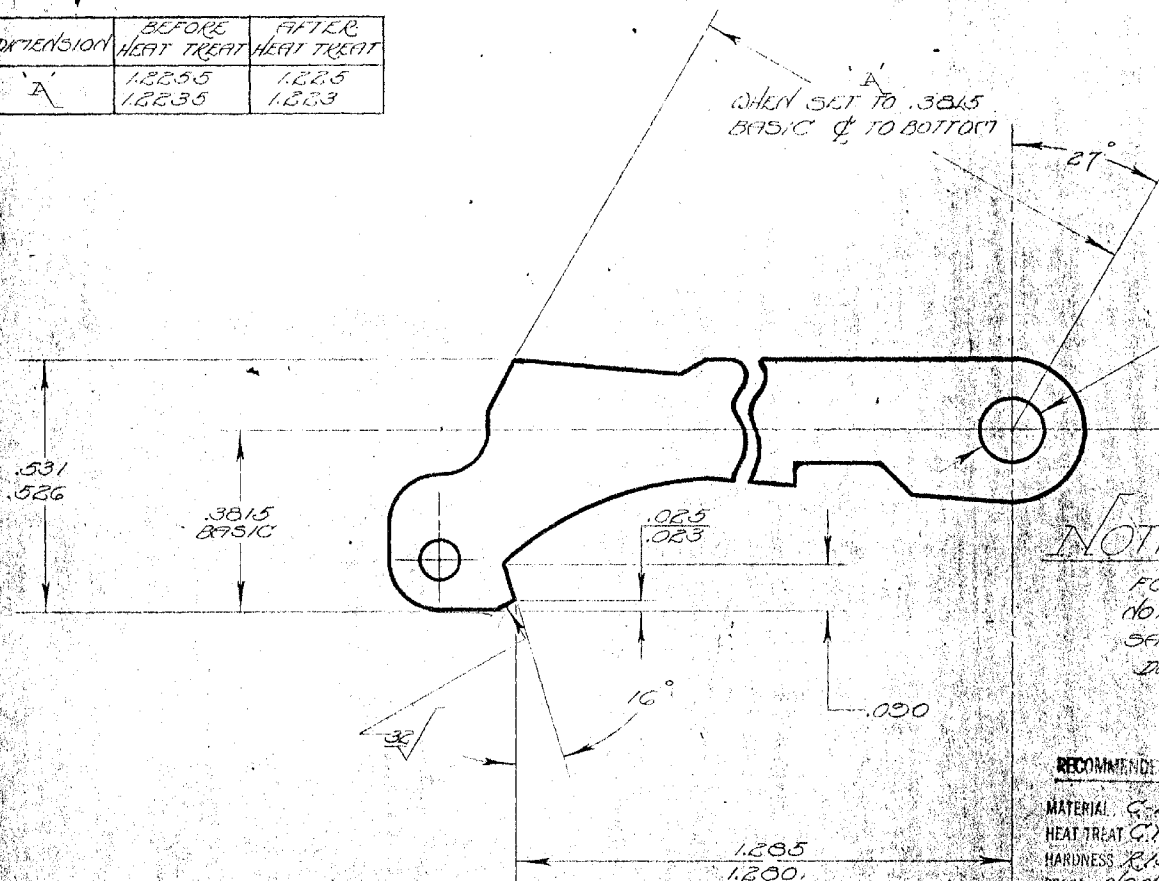
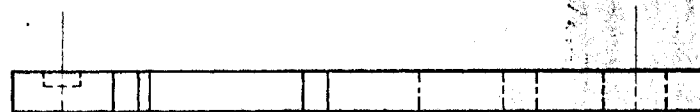
[illegible]

SUPERSEDED
SEE DEC 6500 DATED 4-21-66

7C-13	SAFETY CACT. BLANK		
40XCF	SAFETY CACT. BLANK		
40-X	SAFETY CACT. BLANK		
100BDS	SAFETY CACT. BLANK		
700BDS	SAFETY CACT. BLANK		
712	SAFETY CACT. BLANK		2/10/64
7B1	SAFETY CACT. BLANK		2/10/64
MODEL	PART USE	QUAN	DATE
DES'D BY DATE	DRAWN BY DATE	CHECK BY DATE	APPR. BY DATE
	B. S. S. 6-60	2/10/64	W. J. S. 6-60
TITLE			
SAFETY CACT. (BLANK)			
NUMBER	SCALE	SUPERSEDES—REFERENCE	
1B-17945	9:11		
REMINGTON ARMS CO. INC.			
RESEARCH & DEV. DEPT.			

2B-17945

DIMENSION	BEFORE HEAT TREAT	AFTER HEAT TREAT
A	1.2255 1.2235	1.225 1.223



DO NOT SCALE THIS DRAWING. WORK TO FIGURES
UNLESS OTHERWISE NOTED. TOLERANCES
ON DECIMAL DIMENSIONS ARE $\pm .005$
& ON FRACTIONAL DIMENSIONS $\pm \frac{1}{64}$
& ON ANGULAR DIMENSIONS $\pm 00^\circ.30'$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (RMS) MICRO-INCH ROUGHNESS
VALUES AND ARE THE MAXIMUM ROUGH-
NESS ACCEPTABLE UNLESS OTHERWISE
SPECIFIED. FINISH ROUGHNESS TO BE
125 OR BETTER.

ALTERATIONS

LET.	WAS	REFERENCE	BY	DATE
18	REDESIGN	9253	60	90

SUPERSEDED
SEE 5189 DATED 3-20-63

NOTE

FOR DIMENSIONS
NOT SHOWN, SEE
SAFETY CAM BLANK
DWG. 18-17945.

RECOMMENDED MATERIAL AND HEAT TREAT

MATERIAL G-1022
HEAT TREAT CYANIDE
HARDNESS R15N 89-90
COLOR NONE
HEAT TREAT AND COLOR TO BE DONE BY REMINGTON

40XCP	SAFETY CAM	PL	
40X	SAFETY CAM	PL	
122	SAFETY CAM	PL	
731	SAFETY CAM	PL	
MODEL	PART USE	QUAN.	REV.
ES'D BY DATE	DRAWN BY DATE	CHECK BY DATE	APPR. BY DATE
	B. REED 5-6-62	"K" 10-1-62	W. H. S. JONES
TITLE SAFETY CAM			
NUMBER	SCALE	SUPERSEDES-REFERENCE	
2B-17945	3/1	REMINGTON ARMS CO. INC. RESEARCH & DEV. DEPT.	

12
2-B-17945

SECTIONED TO SHOW INTERNAL

MATERIAL SEE 1-B-17945

10 HEAT TREAT CHAMFER

HARDEN R15N 50-55

COLOR NONE

HEAT TREAT AND COLOR TO BE DONE BY REMINGTON

DO NOT SCALE THIS DRAWING. WORK TO FIGURES
UNLESS OTHERWISE NOTED. TOLERANCES
ON DECIMAL DIMENSIONS ARE $\pm .005$
ON FRACTIONAL DIMENSIONS $\pm \frac{1}{64}$

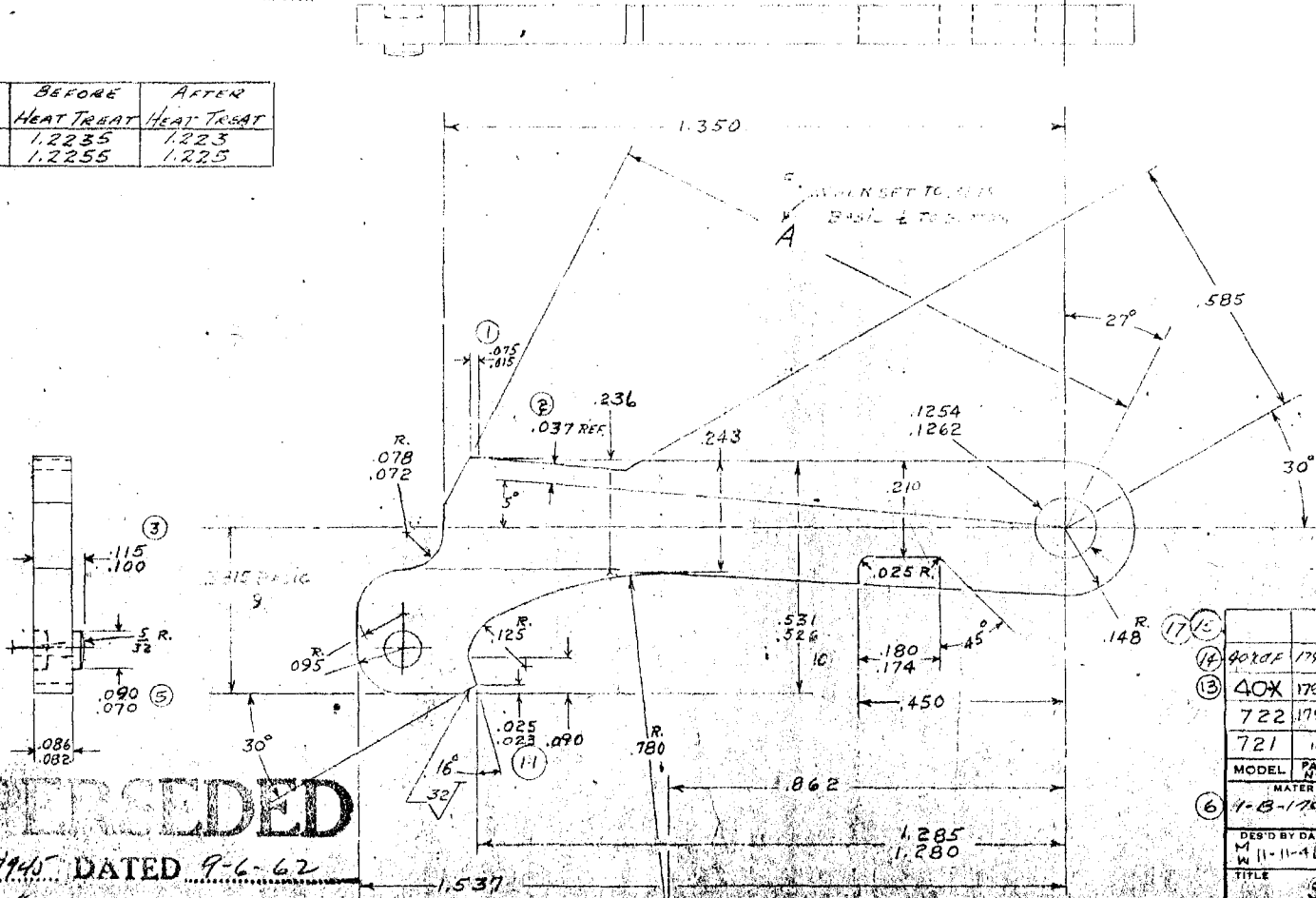
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S) MICRO-INCH ROUGHNESS
VALUES AND ARE THE MAXIMUM ROUGH-
NESS ACCEPTABLE. UNLESS OTHERWISE
SPECIFIED, FINISH ROUGHNESS TO BE
 $\sqrt{16}$ OR BETTER.

ALTERATIONS

LET.	WAS	REFERENCE	BY	DATE
1	ADDED	SDC 103	L.R.	2-12-47
2	.042 - .043	" "	L.R.	2-12-47
3	.025	" 100	"	2-21-47
4	B-17945	" "	"	2-21-47
5	.070 - .080	" "	"	2-21-47
6	AISI-C118	" "	"	"
7	D-1703GY	" "	L.R.	7-16-47
8	ADDED .015	" "	L.R.	7-21-47
9	ADDED .015	" "	L.R.	"
10	.020	" "	L.R.	"
11	.020	222080	" "	7-8-48
12	Added	002141	" "	11-24-51
13	ADDED	002141	" "	5-8-53
14	ADDED	5941	" "	7-15-60
15	"	4217	" "	6-1-61
16	"	"	"	"
17	REMOVED M-100	4295	" "	7-1-61

12

DIMEN- SION	BEFORE HEAT TREAT	AFTER HEAT TREAT
A	1.2235 1.2255	1.223 1.225



SUPERSEDED

SEE 2-B-17945 DATED 9-6-62

REV. 18
#4953

2-B-17945

14	40X0F	17945	SAFETY CAM	100	P.L.
13	40X	17945	SAFETY CAM	"	P.L.
	722	17945	SAFETY CAM	L.R.	NAT 100
	721	"	SAFETY CAM	L.R.	"
MODEL	PART NO.	PART USE	QUAN.	LIST	REMARKS
6	1-B-17945	HEAT TREAT .005-.010 SURFACE TREAT .005-.010			
DES'D BY DATE	DRAWN BY DATE	INDEX BY DATE	CHECK BY DATE		
M 11-11-46	L.R. 1-17-47		M 11-24-47		
TITLE					
NUMBER	SCALE	REFERENCE			
2-B-17945	A X SIZE	0			
	THE REMINGTON ARMS CO.				
	TECHNICAL DEPT.				

10/20/65

Chromed P. M. Sears - Tests to be completed after
 #1. Drop test: dry cycle tests are completed?

2. Dust test. (Wet)? (#15) Run with control sample.

3. Creep.

4. Safety mechanism ^{shock} test. (#9)

5. No Lubrication test (#16). Done in house

6. Field test (#18)

7. Defective Amms. (Punctured primer etc.) (#20)

8. Safety Mechanism Function Test (#22)

not necessary!

Test 40 X B with ^{new} Chrom. PM Sears & Connectors
 checks to see that load stays constant
 three dry cycle.

P.M. 5 ear test

1. Wash P.M. sear in Tri clean.
2. " " connector in Tri clean
3. assemble into Fire control without touching mating surfaces or cam surface.
4. Wash Firing Pin head sear cam surface.
5. adjust trigger pull within spec. if possible.
6. Take 5 readings of spring force at trigger pull.
7. " " " " " trigger pull.
8. Dry cycle rifle (slow interval approx 5 sec.)
9. Check 5 readings at trigger pull.
10. check surfaces for visual.
11. If rust appearing & heavy enough have part sections to check to see if it is rust.
12. If not heavy enough run more dry cycle to build up more surface for checking.

Kelly

1. Present scars are lagged before & after chum.

2. P.M. Scars have very small ex-lins on concrete contact surface.

3. What constant weight should be checked for?

1. 3# to start with.

2. 1# to start with.

3. 3# for testing.

4. 1# after testing.

P.M. Seuss

Impregnated with oil instead of chrome plated.

1. Will dirt & dust pick up be too great?
2. wear of surface?
3. cost saving over chrome?
- 4.

1. Have new 5 ears made up with converted dies.

2. Chrome parts for test.

3. Cost to chrome.

4. oil impregnated parts for test.

5. cost to impregnate with oil.

6.

zinc phosphate

nickel phosphate

6-7-65

Robert Markley setting up gun controls
on 8 rifles. 2 with Productor. Simon.

2 " Pm.

2 "

"

Thos. Plati.

2 "

Machine

Simon & Schuster

.021 higher trigger is to allow for .021 lowered
on machine sears.

above to be tested by Clark Workman when
rifles are assembled.

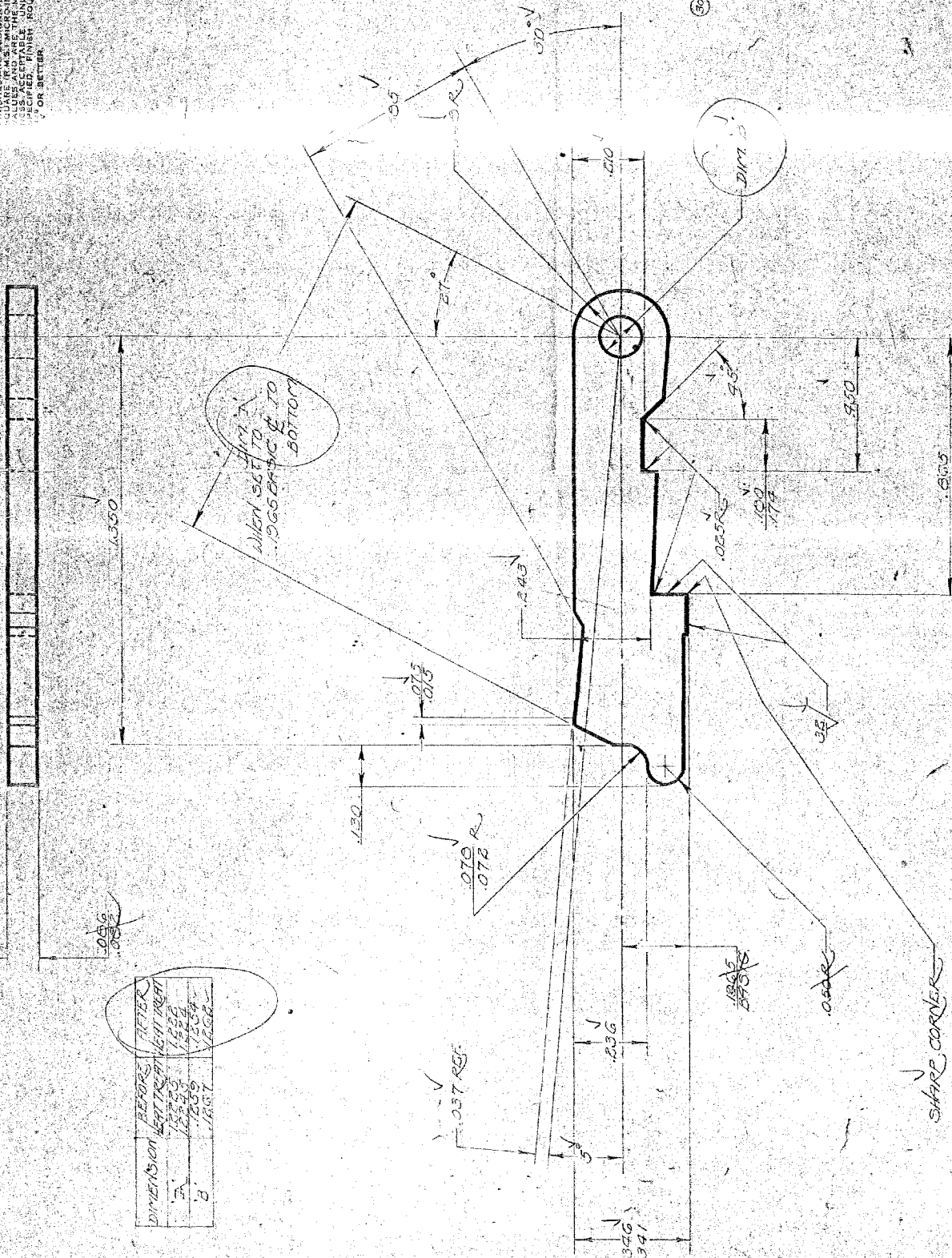
9-8-65

Adam Hagick has 5000 rounds on std. PM sears & PM
sears. Machine sears dropped from 10,000 to 10,000. PM sears
dropped because of high trigger pull at 10,000. PM sears
& std sears to run to 10,000 ^{cycles} then reevaluate test if
further testing should be done.

Run std & PM chomped sears to 50,000 cycles.

Test on std 10- -65 PM chomped sears good, run other function
tests on it.

ALTERNATIVES			
LOT	WASH	REWORKED BY	DATE
28	28 125-172-20	28002	08/04/82
29	29 125-172-20	28002	08/04/82
30	30 125-172-20	28002	08/04/82

[illegible][illegible]

OCT 28 1984

12/18/28

John Brooks

Per M/D Change # ^{DCR} 10586 - we
are grinding flat - not at 6°

any question please JFH
call or contact —
JFH

1. What type of Fixture?
2. Could it be altered to grind at 5°
Kenny will let us know ^{12/19/28}
yes it can be

DESIGN CHANGE REQUEST (DCR)

Sheet 1 of 1

PARTS LIST CHANGE NOTICE (PLCN)

PARTS LIST TRANSMITTAL

TRANSMITTAL OF DRAWINGS / PARTS LIST

Requested By	Changed By	Date
RESEARCH	F. MARTIN	9 Jan 78
Originating Date	Transmittal Date	
	K-10-78	

Model	Part Name	Drawing No.	Part No.
M-700	SEAR SAFETY CAM	C-15666	
M-600	SEAR SAFETY CAM	C-91990	

Dwg. No.	Rev. No.	Design Change
C-15666	12	CHGD. AFTER GRIND TO "BLANK DIM."
"	13	ADD .866-.870 AFTER GRIND
C-91990	9	CHGD. AFTER GRIND TO "BLANK DIM."
"	10	ADD .866-.870 AFTER GRIND

Reason for Change: FOR BETTER DIMENSIONAL CONTROL OF PARTS AND IMPROVE CHARACTERISTICS OF TRIGGER ASSEMBLY BY INSURING SHARP CORNER AFTER GRIND.

Disposition of Parts on Hand (check below)

() Scrap () Alter () Use Inventory

(PLCN) Use form below if part number is changed / add / used, or superseded

	Drawing No.	Part No.	Part Name
Current Listing			
New Listing			
Current Listing			
New Listing			

NOTE: Please mark your Parts List to agree ()

() Superseded Part is Obsolete (check disposition below)

() Use Up () Scrap () Service Repair () Other Model Use

() New Part is: () Steel () Powder Metal () Assembly () Wood () Purchased () Other

APPROVED: John W. Brooks

DESIGN CHANGE REQUEST (DCR)

Sheet 1 of 1

~~PARTS LIST CHANGE NOTICE (PLCN)~~~~PARTS LIST TRANSMITTAL~~~~TRANSMITTAL OF DRAWINGS / PARTS LIST~~

Requested By	Changed By	Date
RESEARCH	F. MARTIN	9 JAN 78
Originating Date	Transmittal Date	
	1-10-78	

Model	Part Name / AIA	Drawing No.	Part No.
M-700	SEAR SAFETY CAM	C-15266	
M-600	SEAR SAFETY CAM	C-91470	

Dwg. No.	Rev. No.	Design Change
C-15266	12	CHG'D. "AFTER GRIND" TO "BLANK DIM."
"	13	ADD .866 - .870 AFTER GRIND
C-91470	9	CHG'D. "AFTER GRIND" TO "BLANK DIM."
"	10	ADD .866 - .870 AFTER GRIND

Reason for Change: FOR BETTER DIMENSIONAL CONTROL OF PARTS AND IMPROVE CHARACTERISTICS OF TRIGGER ASSEMBLY BY INSURING SHARP CORNER AFTER GRIND.

6-29-78 NEW FIXTURE READY FOR TRYOUT

Disposition of Parts on Hand (check below)

() Scrap () Alter () Use Inventory

(PLCN) Use form below if part number is changed / add - used, or superseded.

	Drawing No.	Part No.	Part Name
Current Listing			
New Listing			
Current Listing			
New Listing			

NOTE: Please mark your Parts List to agree ()

() Superseded Part is Obsolete (check disposition below)

() Use Up () Scrap () Service Repair () Other Model Use

() New Part is: () Steel () Powder Metal () Assembly () Wood () Purchased () Other

APPROVED: John R. Remington

92951-2

NO BURRS WIDER THAN PART THICKNESS PERMITTED - PART TO WORK FREELY IN .1725 SLOT

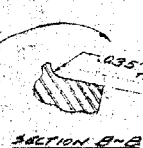
8



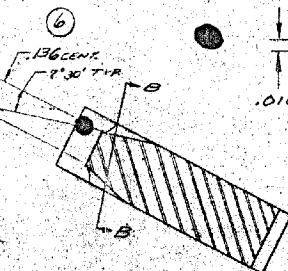
DO NOT SCALE THIS DRAWING: WORK TO FIGURES
UNLESS OTHERWISE NOTED. TOLERANCES
ON DECIMAL DIMENSIONS ARE $\pm .005$
* ON FRACTIONAL DIMENSIONS $\pm \frac{.04}{64}$
* ON ANGULAR DIMENSIONS $\pm .0030^\circ$
FINISHES ARE DESIGNATED BY ROOT MEAN
SQUARE (R.M.S.) MICRO-INCH ROUGHNESS
VALUES ARE THE MAXIMUM ROUGH-
NESS ACCEPTABLE. UNLESS OTHERWISE
SPECIFIED, FINISH ROUGHNESS TO BE
14.5
OR BETTER.

ALTERATIONS				
LET.	ADD	REFERENCE	BY	DATE
1	WAO USE 660	6666	F	4/14/66
2	ADD BEAUNE	6736	DD	3/17/66
3	000E 1 000S A 000 M 000 W USE 600	6736	DD	9/30/66
4	000E A 000 M 000 W C C	1845	C	4/14/66
5	000E A 000 M 000 W C C	1845	C	4/14/66
6	000E A 000 M 000 W C C	1845	C	4/14/66
7	000E A 000 M 000 W C C	1845	C	4/14/66
8	ADD NOTES	10524	"	2/10/66
9	WAO DINTO 2000E	"	"	"
10	WAO DINTO 2000E	"	"	"
11	WAO DINTO 2000E	"	"	"
12	WAO DINTO 2000E	"	"	"
13	WAO DINTO 2000E	"	"	"

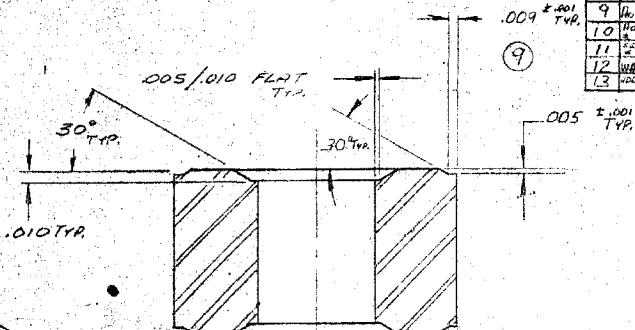
RESALE R 0136334



SECTION B~E

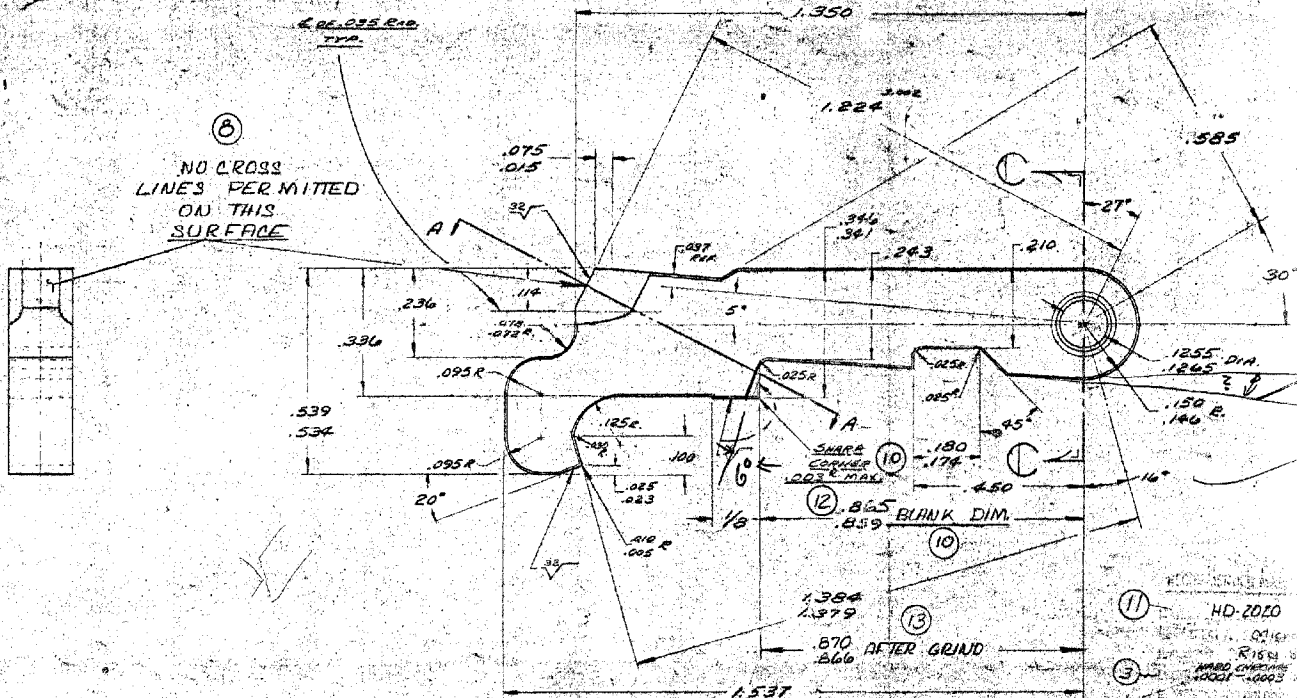


SECTION A-A



SECTION
SCALE 10

CC 5
9



NO CROSS
LINES PERMITTED
ON THIS
SURFACE

1/11/79 grading as shown
can grind c.c. if desired

660.	SEAR SAFETY GUN	1	P.L.
700 WAR	SEAR SAFETY GUN	1	P.L.
40-XB	SEAR SAFETY GUN BLANK	1	P.L.
600	SEAR SAFETY GUN	1	P.L.
700 90.	" " "	1	P.L.
700 90.	" " "	1	P.L.
MODEL	PART USE	QUAN.	USE
DES'D BY DATE	DRAWN BY DATE	CHECK BY DATE	APPR. BY DATE
	150609	10-27-64	10-27-64
TITLE			
SEAR SAFETY GUN			
NUMBER	SUGGESTED REFERENCE		
C-150660	REMINGTON ARMS CO. INC.		
	RESEARCH & DEV. DEPT.		

M/100 SS TESTING

700SS GUNS IN TEST

2/21/92

BARBER - PRESALE R 0136336

Caliber	S/N	Comments
7mm Rem Mag	C6678175	DX
7mm Rem Mag	C6678181	
7mm Rem Mag	C6678192	
7mm Rem Mag	C6678196	
7mm Wby Mag	C6671712	DX
7mm Wby Mag	C6678174	
7mm Wby Mag	C6678200	DX
7mm Wby Mag	C6678201	
.300 Win Mag	C6671714	
.300 Win Mag	C6678177	
.300 Win Mag	C6678187	
.300 Win Mag	C6678188	
.338 Win Mag	C6671715	
.338 Win Mag	C6671720	
.338 Win Mag	C6678191	DX
.338 Win Mag	C6678193	
.25-06 Rem	C6678180	
.25-06 Rem	C6678189	
.25-06 Rem	C6678195	
.25-06 Rem	C6678198	
.270 Win	C6678176	
.270 Win	C6678178	
.270 Win	C6678194	
.270 Win	C	
.280 Rem	C	
.280 Rem	C	
.280 Rem	C	
.280 Rem	C	
.30-06 Sprg	C6671716	
.30-06 Sprg	C6678182	
.30-06 Sprg	C	
.30-06 Sprg	C	

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER

KINZER V. REMINGTON

BARBER - PRESALE R 0136336
R2537324

0-00

DON'T SAY IT - WRITE IT

To: JERRY SELAN/JIM SNEDCKERDate: 2/3/92From: JIM RONKAINENM/700SS DESIGN ACCEPTANCE TEST AMMO NEEDS25-0614000 ENDURANCE.
200 ACCURACY

14200 RDS

7mm Rem MAG

14200 RDS

270 WIN

14200 RDS

7mm WBY MAG

14200 RDS

280 Rem

14200 RDS

300 WIN MAG

14200 RDS

30-06 SPRG

14200 RDS

338 WIN MAG

14200 RDS

"THINK SAFETY IN ADVANCE,
YOU MAY NOT GET A SECOND CHANCE"

15-Apr-1991

xc:H.Munson
D.Thomas

To:J.Ronkanien
From:J.R.Snedeker
Ref: Cost estimate - M/700 Stainless Steel Project

This project will involve modifying the model 700 Bolt Action Rifle by using a Stainless Steel barrel, barrel bracket, bolt body assembly, receiver, and electro-less nickel plated fire control. The following calibers are anticipated at this time: 30-06, 270, 280, 7mm Rem Mag, 338 Win Mag, and the 300 Win Mag (or the 300 Wtrby).

The Design Acceptance Testing program for this project will consist of the following tests:

- o Intentional Abuse - high pressure overload.
- o Environmental Testing
- o Drop Testing
- o Dry cycling
- o Accuracy
- o Endurance

Intentional Abuse Test-

The Intentional Abuse test will be performed to insure that there is no loss of ability to withstand extremely high pressure overload stress due to either changes in materials or in processing. 12 Rifles will be used for this test (two of each caliber). The procedure will involve the working up of a high pressure load for each of the six calibers. When the load is determined, 12 rounds will be loaded and 10 of those 12 rounds will be shot in a pressure barrel to determine the mean pressure and the standard deviation of the load. The two remaining rounds will be used to test the rifles. The rifles will have the bores plugged with 4 bullets forced into the bore to a position just ahead of the chamber as per standard procedure.

Estimate:

12 guns (two of each cal.)- 4 man days to work up the loads, calibrate the equipment, do the actual testing.
4 man-days x 8 hrs/man-day = 32 man-hrs
32 man-hrs x \$20/hr. = \$640.

Environmental Testing -

The Environmental Testing will concentrate on the corrosion effects of salt on the appearance, function and safe use of the rifle. See F. Schmidt for an estimate for this testing.

Drop Testing -

12 rifles (two of each caliber) will be subjected the standard S.A.M.M.I drop test. (These twelve rifles will be used for the strength test as noted above.)

Estimate:

Drop test, Jar off test, and Rotation test; all positions as specified by the standard, examine for damage and record test results - 1 man-day.

1 man-day x 8hrs/man-day = 8 man-hrs

8 man-hrs x \$20/hr. = \$160.

Dry Cycling -

Two rifles will be dry-cycled to 50,000 cycles each to include the full closing, opening, and re-cocking of the action as well as the operation of the trigger and safety arm. The purpose of this test is to determine wear on the parts as well as the possible effects of "galling" between the working surfaces.

Estimate:

2 rifles to 50,000 cycles each; ~25 days with inspections performed every 1000 cycles for the first 5000 cycles and every 5000 cycles thereafter until 50,000 cycles.

1 man-hr/day to monitor and examine rifles and record data.

25 days x 1 man-hr/day = 25 man-hrs

25 man-hrs x \$20/hr. = \$500.

Accuracy -

The 12 guns (two of each caliber) used for the endurance test will be used for the Accuracy testing. The purpose of this test is to determine the effect on accuracy of using a stainless steel barrel. Accuracy will be measured at 0 rds, 1000 rds, 2000 rds, 4000 rds and a final check (for information) at the end of 10,000 rds.

The test will be shot at 100 yards in the test lab 200 yard range from the bench rest position. 3, five-shot groups will be shot for each rifle at each of the above specified endurance round levels per standard procedures. Targets will be gathered, digitized and analyzed.

Estimate:

(at any of the round level):

12 rifles; 3 man-days to shoot 3, five-shot groups, gather targets, digitize and analyze information;

3 man-days x 8hrs/man-day = 24 man-hrs

24 man-hrs x \$20/hr. = \$480.

@ 0 rds - \$480.

@ 1000 rds - \$480.

@ 2000 rds - \$480.

@ 4000 rds - \$480.

@ 10,000 rds - \$480.

Total = \$2400.

Ammo used: ~20 rds/rifle/rd level

20 rds x 12 rifles x 5 rd levels = 1200 rds

1200 rds x \$.13/rd = \$156

\$2400

\$ 156

20 rds x 12 rifles x 5 rd levels = 1200 rds

Total = \$2556

200 rds /gun

Endurance Testing -

The Endurance portion of the testing is intended to cycle the rifles under live fire load conditions to determine (among other things) if any critical dimensional or factory setting changes occur over the life cycle of the firearm. Checks are also made to determine if any excessive ware or material failures or breakages occur.

All 12 rifles (two of each caliber) will be shot to 4000 rds. (twice the normal expected 100 year life expectancy of the product). Half the rifles (6, one of each caliber) will be shot another 6000 rds to a total of 10,000 rds to check for any possible material failures.

Estimate:

Ammunition:

12 rifles to 4000 rds = 48,000 rds

6 rifles to 10,000 rds = 36,000 rds

Total 84,000 rds

12 @ 4000 = 48000 rds
6 @ 6000 = 36000 rds

84000 rds

84,000 rds x \$.13/rd = \$10,920.

Labor at 2000 rds/day/man = 42 man-days

42 man-days x 8hrs/man-day = 336 man-hrs

336 man-hrs x \$20/hr. = \$ 6,720.

4000 x 2 = 8000
6000

14000

ammo \$10,920.

labor \$ 6,720.

Total \$17,640.

Totals:

o	Intentional Abuse	\$ 640.
o	Environmental Testing	see F.Schmidt
o	Drop Testing	\$ 160.
o	Dry cycling	\$ 500.
o	Accuracy	\$ 2,556.
o	Endurance	\$ 17,640.

Total: \$ 21,496.

Note: above estimate does not include the cost of the rifles which will be unusable after the testing is complete.

G-88

DON'T SAY IT—WRITE IT

To J. SnedekerDate 4/25/92From D. Thomas

700SS T&P

- 1) 13 guns (all Cal.) showed some sign of rough Chamber. (DX., Hard to Extract, Hard to Cam bolt)
- 2) 2 guns (300win Mag) Had sticky ejectors (13 #18 D.E. out of 20 rds)
- 3) 2 guns (7mm Rem Mag) 1st round out of Chamber would stem feed Ramp
- 4) 1 gun (338Win Mag) had 6 Light hits - Indent After 100 rds was .014". Firing Pin has Scrub mark on it.
- 5) 3 guns (338 & 300) Min Header with Belt Plugs

"AN UNGUARDED MINUTE HAS AN ACCIDENT IN IT"

700 Stainless Steel TFP 4-24-92

338 Win Mag, 300 Win Mag, 7mm Rem Mag

		1	2	3	4	5
		Trigger	Safe	Safe	Firing Pin	Bolt Opening
		U	on % off	off % ON	Index T	Force (lbs)
		N	(lbs)	(lbs)	(x1000 in.)	(lbs)
1						
2						
3						
4						
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40						

		6	7	8	9	10	11	12	13
		Headspace							
		Bolt Phys							
1									
2									
3									
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40									

BARBER - PRESALE R 0136343

xc: K.W. Soucy / file
J.W. Ronkainen

RESEARCH TEST AND MEASUREMENT REPORT

REPORT# 920431
W.O.# 481167
JUNE 8, 1992

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

Report# 920431

2

Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

ABSTRACT:

Research and Development finds the Design Acceptance Evaluation of the Model 700 Stainless Steel rifle to be acceptable. The evaluation consisted of measurements, accuracy, function/endurance, S.A.A.M.I. drop and high pressure strength testing.

The following calibers were included in the evaluation:

- 7mm Remington Magnum
- 7mm Weatherby Magnum
- 300 Winchester Magnum
- 338 Winchester Magnum
- 25-06 Remington
- 30-06 Springfield
- 280 Remington
- 270 Winchester

Prepared by: D.R. Thomas
Date Prepared: June 8, 1992

proofread and cleared by:

J.W. Ronkainen
Design Engineer

J.R. SNEDEKER
Staff Engineer

K.W. SOUCY
Manager Firearms & Ammo Research

James G. Ronkainen 10/27/92
James R. Snedeker 23 July 92
K.W. Soucy 10-27-92

Report# 920431

3

Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

TO: J.R. Snedeker
FROM: D.R. Thomas

INTRODUCTION:

On February 17, 1992 the test lab received a ten gun sample of each of the magnum caliber M/700 Stainless Steel rifles. The design acceptance evaluation, consisting of measurements, accuracy, function/endurance, strength, and S.A.A.M.I. drop was performed on each of the four magnum calibers. In late April the test lab received a ten gun sample for each of the smaller caliber rifles. Again, all of the above tests were conducted on rifles of each caliber.

SCOPE OF THE TEST:

To thoroughly evaluate the design of the M/700 Stainless Steel rifle.

Report# 920431

4

Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

TEST RESULTS:**MEASUREMENTS:**

Below are the averages for the ten guns measured for each characteristic.

TRIGGER PULL: 4.3 lbs.

SAFE ON TO OFF: 5.7 lbs.

SAFE OFF TO ON: 7.2 lbs.

FIRING PIN INDENT: .0185 in.

BOLT OPENING FORCE: 7.9 lbs.

HEADSPACE: All guns were within specifications.

A complete summary of measurement data can be found in Appendix A.

ACCURACY:

All 16 rifles tested were within accuracy specifications at 0 rounds and at 2000 rounds. When the guns were accuracy tested after 4000 rounds of endurance shooting 4 of the 16 rifles were slightly out of specification. A complete summary of the accuracy testing can be found in Appendix B.

FUNCTION/ENDURANCE:

Sixteen rifles were endurance tested a total of 112,000 rounds. There were a total of 436 malfunctions for a .39% malfunction rate.

The front left tab of the Magazine Follower was bent to block the movement of the spring. This was done to reduce Stems bottom chamber malfunctions.

There were no breakages during the endurance testing.

A complete summary of endurance testing can be found in Appendix C.

STRENGTH:

One rifle of each caliber was subjected to a high pressure round fired into a plugged bore.

The resulting damage in each case was typical of all Model 700 rifles subjected to this test.

A complete summary of the strength test can be found in Appendix D.

S.A.A.M.I. DROP:

One rifle of each caliber was subjected to the S.A.A.M.I. drop test.

None of the rifles fired during any of the drops.

Report# 920431

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Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

REPORT TEXT:

GENERAL:

The following 32 rifles were used for the Design Acceptance Evaluation:

SERIAL#	CALIBER	TEST
C6678196	7mm Rem Mag	Measurements
C6678192	7mm Rem Mag	Measurements, Endurance, Accuracy, Strength
C6678181	7mm Rem Mag	Measurements, Endurance, Accuracy, Drop
C6678175	7mm Rem Mag	Measurements
C6671715	338 Win Mag	Measurements
C6671720	338 Win Mag	Measurements, Endurance, Accuracy, Strength
C6678191	338 Win Mag	Measurements
C6678193	338 Win Mag	Measurements, Endurance, Accuracy, Drop
C6671712	7mm Wby Mag	Measurements
C6678174	7mm Wby Mag	Measurements, Endurance, Accuracy, Drop
C6678200	7mm Wby Mag	Measurements
C6678201	7mm Wby Mag	Measurements, Endurance, Accuracy, Strength
C6671714	300 Win Mag	Measurements, Endurance, Accuracy, Strength
C6678177	300 Win Mag	Measurements
C6678187	300 Win Mag	Measurements
C6678188	300 Win Mag	Measurements, Endurance, Accuracy, Drop
C6678189	25/06	Measurements, Endurance, Accuracy
C6678195	25/06	Measurements, Endurance, Accuracy
C6678198	25/06	Measurements, Drop, Strength
C6678180	25/06	Measurements
C6678182	30/06	Measurements, Drop, Strength
C6706171	30/06	Measurements, Endurance, Accuracy
C6706172	30/06	Measurements
C6671716	30/06	Measurements, Endurance, Accuracy
C6678176	270 Win	Measurements, Drop, Strength
C6706173	270 Win	Measurements, Endurance, Accuracy
C6678194	270 Win	Measurements, Endurance, Accuracy
C6678178	270 Win	Measurements
C6706174	280 Rem	Measurements, Drop, Strength
C6706176	280 Rem	Measurements, Endurance, Accuracy
C6706175	280 Rem	Measurements
C6706177	280 Rem	Measurements, Endurance, Accuracy

Report# 920431

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

REPORT TEXT:(cont.)

MEASUREMENTS:

Trigger pull, safety button on/off forces, headspace, bolt opening force and firing pin indent were taken on all thirty-two rifles.

Following is a list of instruments used for measurements:

Trigger pull: Chatillon Model IN-10 spring scale

Safety button forces: Hunter LO-10 spring scale

Bolt opening force: Hunter L-20 spring scale

Headspace: B-83853-A Belt plugs were used for 300 Win Mag, 338 Win Mag, 7mm Rem Mag, 7mm Weatherby Mag.

B-73438 Clymer headspace plugs were used for 3006, 2506, and 270 calibers.

B-81578 Clymer headspace plugs were used for 280 caliber.

Firing Pin indent: A crusher holder 300 Win was used for all four magnum calibers.

B-1-82744 crusher holder was used for 280 Rem. caliber.

B-2-54337 crusher holder was used for 3006, 2506, & 270.

FUNCTION/ENDURANCE:

One rifle of each caliber was tested to 10,000 rounds and one to 4000 rounds.

The endurance/function testing was done in the Research shooting room located in building 52-1-A.

The following ammunition types were used in the function/endurance test:

CALIBER	ORDER#	DESCRIPTION	ROUNDS
7MM REM MAG	R7MM2	Rem. 150gn. Pointed Soft Point Core-Lokt	5200
	R7MM3	Rem. 175gn. Pointed Soft Point Core-Lokt	5200
	P7RE	Fed. 165gn. Boat-tail Soft Point	900
	7RB	Fed. 175gn. Hi-Shok Soft Point	800
	7RA	Fed. 150gn. Hi-Shok Soft Point	1000
	17021	Norma 150gn.	400
	X7MMR1	Win. 150gn. Power Point	300
	X7MMR2	Win. 175gn. Power Point	200
		TOTAL	14000
300 WIN MAG	R300W1	Rem. 150gn. Pointed Soft Point Core-Lokt	6800
	R300W2	Rem. 180gn. Pointed Soft Point Core-Lokt	6800
	X30WM1	Win. 150gn. Power Point	200
	X30WM2	Win. 180gn. Power Point	100
	X30WM3	Win. 220gn. Silver Tip	100
		TOTAL	14000
7MM WEATHERBY MAG	R7MWB1	Rem. 140gn. Pointed Soft Point	5600
	R7MWB2	Rem. 175gn. P.S.P. Core-Lokt	5500
	17031	Weatherby 139gn.	1300
	17032	Weatherby	200
	17035	Weatherby 175 gn.	1400
		TOTAL	14000

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

REPORT TEXT:(cont.)

FUNCTION/ENDURANCE cont.

CALIBER	ORDER#	DESCRIPTION	ROUNDS
338 WIN MAG	R338W1	Rem. 225gn. Pointed Soft Point	6600
	R338W2	Rem. 250gn. Pointed Soft Point	6500
	X3383	Win. 225gn. Soft Point	900
		TOTAL	14000
2506	R25061	Rem. 87gn. Hollow Point Power-Lokt	3100
	R25062	Rem. 100gn. Pointed Soft Point Core-Lokt	3500
	R25063	Rem. 120gn. Pointed Soft Point Core-Lokt	2100
	X25061	Win. 90gn. Positive Expanding Point	1000
	X25062	Win. 120gn. Positive Expanding Point	500
	2506A	Fed. 90gn. Hollow Point Varmint	1900
	2506B	Fed. 117gn. Hi-Shok Soft Point	1900
		TOTAL	14000
270 WIN	R270W1	Rem. 100gn. Pointed Soft Point	3100
	R270W2	Rem. 130gn. Pointed Soft Point Core-Lokt	3300
	R270W3	Rem. 130gn. Bronze Point	500
	R270W4	Rem. 150gn. Soft Point Core-Lokt	100
	X2701	Win. 100gn. Pointed Soft Point	1000
	X2703	Win. 130gn. Silver Tip	300
	X2704	Win. 150gn. Power Point	500
	P270C	Fed. 150gn. Boat-tail Soft Point	1300
	P270E	Fed. 150gn. Nosler Partition	500
	270A	Fed. 130gn. Hi-Shok Soft Point	1900
	270B	Fed. 150gn. Hi-Shok Soft Point	1500
		TOTAL	14000
280	R280R1	Rem. 150gn. Pointed Soft Point Core-Lokt	6000
	R280R2	Rem. 165gn. Soft Point Core-Lokt	500
	R280R3	Rem. 140gn. Pointed Soft Point	7500
		TOTAL	14000
3006	R30062	Rem. 150gn. Pointed Soft Point Core-Lokt	5900
	R30064	Rem. 180gn. Soft Point Core-Lokt	1500
	R30065	Rem. 180gn. Pointed Soft Point Core-Lokt	5000
	X30061	Win. 150gn. Power Point	100
	X30063	Win. 150gn. Silver Tip	500
	3006D	Fed. 165gn. Boat-tail Soft Point	1000
		TOTAL	14000

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

REPORT TEXT:(cont.)ACCURACY:

Two rifles of each caliber were accuracy tested at 0, 2000, and 4000 rounds.

The following ammunition types were used in the accuracy testing:

7MM Rem. Mag.	R7MM3	175gn. P.S.P.	lot# M-22SC 8423
300 Win. Mag.	R300W2	180gn. P.S.P.	lot# M05YC4711
338 Win. Mag.	R338W1	225gn. P.S.P.	lot# L18 PC5323
7MM Wby. Mag.	R7MWB1	140gn. P.S.P.	lot# P10PB-3023
2506 Rem.	R25062	100gn. P.S.P.	lot# L20ID 1883
280 Rem.	R280R3	140gn. P.S.P.	lot# R05 MC 8707
270 Win.	R270W1	100gn. P.S.P.	lot# N17 FC 4925
3006	R30065	180gn. P.S.P.	lot# N23 FA 7913

A Lyman "All American" 20X scope was used.

STRENGTH:

One rifle of each caliber was subjected to a high pressure load with a plugged bore. Specific information pertaining to the strength test can be found in Appendix D

S.A.A.M.I. DROP:

One rifle of each caliber was dropped onto a one inch thick, 85+/-5 Durometer rubber mat located in building 52-1 A.

PROCEDURE:MEASUREMENTS:

TRIGGER PULL: The hook of the trigger pull scale is placed at the center of the finger loop on the trigger. The scale is then pulled up and to the rear, two finger widths above the comb. An average of three readings is taken for each rifle.

SAFETY ON/OFF FORCES: The Hunter LO-10 spring scale is used with a six inch extension and a "V" tip. The tip is pressed against the safety button with the extension parallel to the direction of safety arm movement. The peak force is recorded for each cycle of the safety arm. Three readings were taken for each direction of safety arm travel. All measurements were taken with the gun cocked.

HEADSPACE: The min. plug is placed in the chamber. The Bolt is then closed over the plug. If the Bolt fully closes on the plug the next higher plug is tried. The recorded reading is the last plug that the Bolt would fully close on.

FIRING PIN INDENT: Both ends of the copper crusher are burnished to remove any burrs. The crusher is then placed on a dial indicator base and the dial set to zero. The crusher is then placed in the crusher holder and placed into the chamber of a rifle. The rifle is then fired on the crusher. The crusher is then placed back on the dial base and the dial indicator point is placed at the bottom of the firing pin indent in the crusher. The reading on the dial indicator is the firing pin indent. An average of three readings was taken for each gun.

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

PROCEDURE:(cont.)**MEASUREMENTS:(cont.)**

BOLT OPENING FORCE: The Hunter L-20 spring scale was used with a six inch extension, a hook tip, and a special adapter that fits over the bolt handle. The adapter is slipped over the bolt handle and the spring scale is pulled upward in a direction perpendicular to the bore. Care was taken to pull evenly and not jerk the scale, so that the readings would not be influenced by inertia. The scale is observed as the bolt is cammed open and the highest reading is taken as the bolt opening force. An average of three readings was taken for each rifle.

FUNCTION/ENDURANCE:

The function/endurance testing was conducted in the Research shooting room, located in building 52-1-A.

The rifle was loaded, one round in the chamber and four rounds in the magazine (three for magnum caliber rifles). The rifle was then fired, the bolt cycled, etc. until the rifle was empty. Any malfunctions or observations were recorded. This procedure was then repeated. The rifles were air cooled every twenty rounds and cleaned as needed, about every 1000 rounds.

ACCURACY:

All accuracy testing was shot at 100 yards in the Research range, located below building 52-1.

All accuracy testing was done from the seated bench rest position.

Three, five shot groups were shot at 0, 2000, and 4000 rounds with two rifles of each caliber.

The rifles were air cooled and the bores were cleaned after each group.

The targets were analyzed for group size using the HP 9000 computer and digitizing tablet.

STRENGTH:

Four bullets were lodged in the bore of each rifle to be tested.

A high pressure round was developed using the reloading and P&V facilities.

The high pressure round was fired in the "Iron Lung" in the measurement lab.

Data and results concerning the strength testing can be found in Appendix D.

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S.A.A.M.I. DROP:

One rifle of each caliber was dropped in accordance to S.A.A.M.I. specifications.

The rifles should not and did not fire during any of the drops.

All drops are onto a one inch 85+/-5 Durometer rubber mat backed by concrete.

With the safe in the off position, the rifle is dropped twelve inches from the lowest point of the gun. This drop is done with the rifle in six attitudes:

- 1) Barrel vertical with muzzle up (12 inches from butt plate to mat)
- 2) Barrel vertical with muzzle down (12 in. from muzzle to mat)
- 3) Barrel horizontal with bottom down (12 in. from toe to mat)
- 4) Barrel horizontal with bottom up (12 in. from top to mat)
- 5) Barrel horizontal with left side up (12 in./ right side to mat)
- 6) Barrel horizontal with right side up (12 in./ left side to mat)

The four foot drops are done with the safe in the on position. The same six attitudes are used with the four foot measurement being made from the mat to the center of gravity of the rifle.

In addition a "rotation test" was done on each gun. In this test the butt of the rifle is placed on the mat, with the muzzle pointed up. With the safe in the off position, the gun is allowed to fall on it's right side and then on it's left side.

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

APPENDIX

- A) MEASUREMENTS
- B) ACCURACY
- C) ENDURANCE
- D) STRENGTH
- E) S.A.A.M.I. DROP

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

APPENDIX A

AVERAGE MEASUREMENT BY RIFLE

CALIBER	SERIAL#	TRIGGER PULL (lbs.)	SAFETY ON/OFF (lbs.)	SAFETY OFF/ON (lbs.)	F.P. INDENT (in.)	BOLT FORCE (lbs.)	HEADSPACE (in.)
7mm Rem	C6678196	3.9	6.2	7.3	.0173	8.2	Min+.002
7mm Rem	C6678192	4.6	4.5	6.9	.0183	8.4	Min.
7mm Rem	C6678181	4.3	4.8	9.1	.0173	8.0	Min+.001
7mm Rem	C6678175	3.5	4.7	8.4	.0167	8.5	Min.
338 Win	C6671715	3.3	5.2	6.5	.0167	7.2	OK*
338 Win	C6671720	4.4	5.6	6.1	.0173	7.7	OK*
338 Win	C6678191	3.7	5.8	6.5	.0173	8.2	OK*
338 Win	C6678193	4.2	5.0	6.2	.0170	8.7	OK*
7mm Wby	C6671712	3.6	6.4	7.2	.0173	6.9	OK*
7mm Wby	C6678174	4.3	6.5	7.6	.0163	8.5	OK*
7mm Wby	C6678200	4.8	4.8	9.0	.0177	7.7	OK*
7mm Wby	C6678201	4.3	6.2	6.8	.0180	9.6	OK*
300 Win	C6671714	4.3	4.5	8.8	.0180	7.5	OK*
300 Win	C6678177	4.3	5.0	6.8	.0173	8.1	OK*
300 Win	C6678187	3.9	5.7	7.1	.0173	8.4	OK*
300 Win	C6678188	4.3	5.6	8.3	.0170	7.9	OK*
25 06	C6678189	4.5	5.3	7.3	.0197	7.3	Min+.002
25 06	C6678195	4.5	6.3	7.7	.0200	7.7	Min+.003
25 06	C6678198	4.6	5.6	7.3	.0197	7.8	Min+.002
25 06	C6678180	5.4	6.2	7.8	.0203	7.7	Min+.003
30 06	C6678182	4.4	5.4	6.1	.020	7.1	Min+.003
30 06	C6706171	4.5	5.6	6.3	.020	7.3	Min+.003
30 06	C6706172	4.7	6.8	7.5	.0197	8.2	Min+.002
30 06	C6671716	4.8	6.1	7.3	.0197	8.1	Min+.003
270 Win	C6678176	4.7	6.2	6.8	.0197	8.0	Min+.002
270 Win	C6706173	5.0	6.7	6.8	.0197	7.9	Min+.004
270 Win	C6678194	4.1	5.1	7.4	.0200	7.5	Min+.002
270 Win	C6678178	4.6	5.5	6.8	.0200	7.3	Min+.001
280 Rem	C6706174	4.6	6.5	7.3	.0193	7.5	Min+.007
280 Rem	C6706176	4.8	5.5	7.6	.0197	9.8	Min+.005
280 Rem	C6706175	3.8	7.1	5.8	.0190	7.4	Min+.005
280 Rem	C6706177	3.4	5.7	6.3	.0200	8.1	Min+.005

* NOTE: Graduated headspace gages weren't available.

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APPENDIX A

SAFETY ON TO OFF MEASUREMENTS (three readings per rifle)

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
ONOFF	96	5.6823	5.5500	5.6779	0.7213	0.0736
	MIN	MAX	Q1	Q3		
ONOFF	4.2500	7.2500	5.2000	6.2500		

Histogram of All Safety ON to OFF Force measurements.

Midpoint	Count	
4.4	7	*****
4.8	9	*****
5.2	16	*****
5.6	22	*****
6.0	15	*****
6.4	18	*****
6.8	4	****
7.2	5	*****

SAFETY OFF TO ON MEASUREMENTS (three readings per rifle)

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
OFFON	96	7.2115	7.0000	7.1703	0.9040	0.0923
	MIN	MAX	Q1	Q3		
OFFON	5.5000	10.0000	6.5250	7.7000		

Histogram of All OFF to ON Safety Force Measurements.

Midpoint	Count	
5.5	2	**
6.0	11	*****
6.5	14	*****
7.0	23	*****
7.5	23	*****
8.0	10	*****
8.5	6	*****
9.0	4	****
9.5	2	**
10.0	1	*

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APPENDIX A

FIRING PIN INDENT MEASUREMENTS (three readings per rifle)

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
INDENT	96	0.01854	0.01900	0.01855	0.00140	0.00014
	MIN	MAX	Q1	Q3		
INDENT	0.01600	0.02100	0.01700	0.02000		

Histogram of All Firing Pin Indent Measurements.

Midpoint	Count	
0.0160	4	****
0.0170	27	*****
0.0180	16	*****
0.0190	15	*****
0.0200	30	*****
0.0210	4	****

TRIGGER PULL MEASUREMENTS (three readings per rifle)

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
TRIG	96	4.3026	4.3500	4.3047	0.5004	0.0511
	MIN	MAX	Q1	Q3		
TRIG	3.2000	5.7000	4.0000	4.7000		

Histogram of All Trigger Pull Measurements

Midpoint	Count	
3.2	4	****
3.4	1	*
3.6	8	*****
3.8	4	****
4.0	12	*****
4.2	17	*****
4.4	6	*****
4.6	19	*****
4.8	18	*****
5.0	4	****
5.2	1	*
5.4	0	
5.6	0	
5.8	2	**

BOLT OPENING FORCE MEASUREMENTS (three readings per rifle)

	N	MEAN	MEDIAN	TRMEAN	STDEV	SEMEAN
BOLT	96	7.9443	8.0000	7.8977	0.6649	0.0679
	MIN	MAX	Q1	Q3		
BOLT	6.8000	10.0000	7.5000	8.3000		

Histogram of ALL BOLT OPENING FORCE MEASUREMENTS

Midpoint	Count	
6.8	2	**
7.2	14	*****
7.6	26	*****
8.0	23	*****
8.4	19	*****
8.8	6	*****
9.2	0	
9.6	5	*****
10.0	1	*

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APPENDIX B

ACCURACY

CAL	SERIAL#	Group	0 rounds	2000 rds.	4000 rds.
300 Win. Mag.	C6678188	1	2.28	1.31	2.23
		2	1.97	1.58	3.25
		3	2.65	1.55	2.55
		AVG.	2.30	1.48	2.68
300 Win. Mag.	C6671714	1	2.40	1.67	2.08
		2	1.49	1.67	1.73
		3	1.32	1.37	2.37
		AVG.	1.74	1.57	2.06
7mm Wby. Mag.	C6678201	1	1.70	1.61	1.47
		2	1.31	1.60	1.67
		3	1.42	.72	1.81
		AVG.	1.48	1.31	1.65
7mm Wby. Mag.	C6678174	1	1.68	1.89	2.81
		2	2.30	1.86	2.76
		3	2.40	1.45	3.97
		AVG.	2.13	1.73	3.18
338 Win. Mag.	C6671720	1	1.97	1.65	1.67
		2	2.19	1.60	2.61
		3	3.30	1.04	1.56
		AVG.	2.49	1.43	1.95
338 Win. Mag.	C6678193	1	2.21	.83	2.70
		2	1.31	1.30	1.74
		3	2.92	1.12	2.35
		AVG.	2.15	1.08	2.26
7mm Rem. Mag.	C6678181	1	1.95	1.35	2.92
		2	1.13	.67	4.15
		3	1.58	2.14	3.19
		AVG.	1.55	1.38	3.42*
7mm Rem. mag.	C6678192	1	1.21	3.01	1.61
		2	2.89	.81	1.73
		3	2.52	1.48	1.27
		AVG.	2.20	1.76	1.54

* Out of zero round specification of 2.7 inches.

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APPENDIX B

CAL	SERIAL#	ACCURACY			
		Group	0 rounds	2000 rds.	4000 rds.
2506	C6678189	1	1.58	1.21	2.54
		2	1.21	2.00	2.90
		3	1.61	1.66	1.83
		AVG.	1.47	1.62	2.42*
2506	C6678195	1	1.83	1.51	2.45
		2	2.39	1.99	2.65
		3	2.09	2.43	1.78
		AVG.	2.10	1.98	2.29*
3006	C6706171	1	1.96	1.05	1.67
		2	2.36	1.44	2.19
		3	1.66	1.97	1.20
		AVG.	1.99	1.49	1.68
3006	C6671716	1	1.80	1.06	1.86
		2	2.59	1.62	2.10
		3	2.02	1.51	2.06
		AVG.	2.14	1.40	2.00
270	C6678194	1	1.52	2.39	3.56
		2	1.81	2.26	3.17
		3	2.35	1.88	3.83
		AVG.	1.90	2.18	3.52**
270	C6706173	1	2.12	2.30	2.02
		2	2.84	2.01	2.16
		3	2.92	2.51	3.01
		AVG.	2.63	2.27	2.40
280	C6706177	1	1.17	.85	1.43
		2	2.34	1.23	1.27
		3	1.97	1.51	.49
		AVG.	1.82	1.20	1.06
280	C6706176	1	1.04	1.23	1.39
		2	1.99	1.73	1.81
		3	1.43	1.32	1.86
		AVG.	1.49	1.43	1.69

* Out of zero round specification of 2.2 inches.

** Out of zero round specification of 3.5 inches.

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APPENDIX C ENDURANCE

CALIBER	SERIAL#	SBC	EDS	BO	DE	JM	DX	SSM	TOTAL		MALF. RATE
									MALF	RDS.	
338 Win	C6671720	4	41	0	0	0	0	0	45	4000	1.13
338 Win	C6678193	22	3	0	0	0	0	0	25	10000	.25
7mm Wby	C6678201	11	0	0	0	0	0	1	12	4000	.30
7mm Wby	C6678174	1	20	0	4	0	2	0	27	10000	.27
300 Win	C6671714	0	25	32	3	14	0	0	74	4000	1.85
300 Win	C6678188	0	10	3	4	0	8	0	25	10000	.25
7mm Rem	C6678192	125	36	15	20	0	0	0	196	4000	4.90
7mm Rem	C6678181	17	12	0	0	0	0	0	29	10000	.29
2506	C6678189	0	0	0	0	0	0	0	0	4000	0.00
2506	C6678195	0	0	0	0	0	0	0	0	10000	0.00
280	C6706176	0	0	0	0	0	0	0	0	4000	0.00
280	C6706177	1	0	0	0	0	0	0	1	10000	.01
3006	C6706171	0	0	0	0	0	0	0	0	4000	0.00
3006	C6671716	0	0	0	0	0	0	0	0	10000	0.00
270	C6706173	0	0	0	0	0	0	0	0	4000	0.00
270	C6678194	0	0	0	2	0	0	0	2	10000	.02
TOTALS		181	147	50	33	14	10	1	436	112000	.39%

CALIBER	SERIAL#	ROUND	COMMENTS
338 WIN	C6671720	1540	Replaced Extractor and EDS problem cleared up.
		3100	Fire Control was adjusted due to increased trigger pull.
338 Win	C6678193	3	Replaced Extractor.
		2000	First round feeding from Magazine(right side) will bind belt against belt on shell underneath.
		4900	Replaced Extractor.
		5100	Burnished chamber.
7mm Wby	C6678201	START	Bolt won't close over full Magazine.
			Bolt closes (cams) hard.
7mm Wby	C6678174	1000	Bolt won't close over full magazine.
		3000	Very hard to extract fired case.
		4000	Burnished chamber to alleviate hard extraction.
300 Win	C6671714	100	Magazine Follower staked by J. Ronkainen.
		500	Old style, plated follower was installed to improve the jumping of shell from under the rail.
300 Win	C6678188	START	Bolt won't close over full Magazine.
		200	Staked tab on Magazine Follower.
		400	Replaced Extractor.
7mm Rem	C6678192	100	Staked tab on Magazine Follower.
		300	Staked tab on Magazine Follower.
		300	Bolt closes hard over full Magazine.
7mm Rem	C6678181	START	Bolt won't close over full Magazine.
		800	Trigger pull increased to 10 lbs.
		3300	Cleaned Bolt face. (EDS cleared up)
280 Rem	C6706176	2000	Heavy bolt lift.
270 Win	C6706173	200	J. Ronkainen staked Magazine Follower to keep spring in correct position.
270 Win	C6678194	1200	Trigger pull increased to 8.5-9 lbs. Moly-Kote found in Fire Control; Cleaned and readjusted to specification by production.

NOTE: Bolt closes hard over full magazine caused by the center guard screw being too tight

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

APPENDIX D

STRENGTH

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MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/20/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6678201
Gauge/Cal: 7mm Wby. Mag.
Origin: Stainless Steel D.A. Sample
Comments: Four bullets lodged in the barrel ahead of the chamber.

HISTORY:

Condition: Good
Previous rounds fired: 4000
Test date: 4/20/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4227
Powder Weight: 65 gns.
Bullet Weight: 175 gn. Spitzer

Estimated Pressure: 150,000 psi + (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt Locked up (shroud swelled into c'bore)
No leakage around Bolt Head

Report# 920431

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Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/20/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6671720
Gauge/Cal: 338 Win. Mag.
Origin: Stainless Steel D.A. Sample
Comments: Four bullets lodged in the barrel ahead of the chamber.

HISTORY:

Condition: Good
Previous rounds fired: 4000
Test date: 4/20/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4198
Powder Weight: 70 gns.
Bullet Weight: 200 gn.

Estimated Pressure: 150,000 psi + (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt Locked up (shroud swelled into c'bore)
No leakage around Bolt Head

Report# 920431

21

Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/20/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6678192
Gauge/Cal: 7mm Rem. Mag.
Origin: Stainless Steel D.A. Sample
Comments: Four bullets lodged in the barrel ahead of the chamber.

HISTORY:

Condition: Good
Previous rounds fired: 4000
Test date: 4/20/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4198
Powder Weight: 65 gns.
Bullet Weight: 175 gns.

Estimated Pressure: 150,000 psi + (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt Locked up (shroud swelled into c'bore)
No leakage around Bolt Head

Report# 920431

22

Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/20/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6671714
Gauge/Cal: 300 Win. Mag.
Origin: Stainless Steel D.A. Sample
Comments: Four bullets lodged in the barrel ahead of the chamber.

HISTORY:

Condition: Good
Previous rounds fired: 4000
Test date: 4/20/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4198
Powder Weight: 70 gns.
Bullet Weight: 220 gns.

Estimated Pressure: 150,000 psi + (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt Locked up (shroud swelled into c'bore)
No leakage around Bolt Head

Report# 920431

23

Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/27/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6678176
Gauge/Cal: 270 Win.
Origin: Stainless Steel Design Acceptance Sample
Comments: 4 bullets lodged in barrel just ahead of the chamber.

HISTORY:

Condition: New
Previous rounds fired: 0
Headspace at test: Min +.002
Test date: 4/27/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4198
Powder Weight: 55 grains
Bullet/Shot Weight: 130 grains

Estimated Pressure: 120000+psi (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt locked up
Brass leakage through the rail cut in the Receiver
Bottom of Stock blew out, releasing the Magazine Spring and Follower

Report# 920431

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Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/27/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6678182
Gauge/Cal: 30-06
Origin: Stainless Steel Design Acceptance Sample
Comments: 4 bullets lodged in barrel just ahead of the chamber.

HISTORY:

Condition: New
Previous rounds fired: 0
Headspace at test: Min +.003
Test date: 4/27/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4198
Powder Weight: 50 grains
Bullet/Shot Weight: 220 grains

Estimated Pressure: 150000+psi (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt locked up
Brass leakage through the rail cut in the Receiver
Bottom of Stock blew out, releasing the Magazine Spring and
Follower.
Stock split at the rear of the Receiver and through the front take
down hole.

Report# 920431

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Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/27/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6678198
Gauge/Cal: 25-06
Origin: Stainless Steel Design Acceptance Sample
Comments: 4 bullets lodged in barrel just ahead of the chamber.

HISTORY:

Condition: New
Previous rounds fired: 0
Headspace at test: Min +.002
Test date: 4/27/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4198
Powder Weight: 49 grains
Bullet/Shot Weight: 120 grains

Estimated Pressure: 120000+psi (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt locked up but could be opened with a hammer.
Case expanded against the shroud causing the shroud to swell against the c'bore in the Barrel.

Report# 920431

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Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

SUMMARY OF INTENTIONAL GUN ABUSE TEST

Test #: 920431
W.O.#: 481167
By: D. Thomas
Date: 4/27/92

FIREARM:

Make: Remington
Model: 700
Serial#: C6706174
Gauge/Cal: 280
Origin: Stainless Steel Design Acceptance Sample
Comments: 4 bullets lodged in barrel just ahead of the chamber.

HISTORY:

Condition: New
Previous rounds fired: 0
Headspace at test: Min +.007
Test date: 4/27/92

ABUSIVE

LOAD USED:

Case Make And Type: Remington
Primer: Remington
Powder Type: 4198
Powder Weight: 55 grains
Bullet/Shot Weight: 175 grains

Estimated Pressure: 120000+psi (with no bore obstruction)

ADDITIONAL COMMENTS

Bolt locked up
Brass leakage through the rail cut in the Receiver
Bottom of Stock blew out, releasing the Magazine Spring and Follower
Both sides of Stock under the Receiver area blew off

Report# 920431

27

Work Order# 481167

MODEL 700 STAINLESS STEEL, DESIGN ACCEPTANCE

APPENDIX E

S.A.A.M.I. DROP

SAAMI DROP TEST

TEST TITLE Stainless Steel V.A.
REPORT # 920431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# C6678198 TRIGGER PULL (LBS.) 3.8 lb.
COMMENTS 25-06 - 0 rounds

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>

SAAMI DROP TEST

TEST TITLE STAINLESS Steel | D.A.
REPORT # 720431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# C 6678182 TRIGGER PULL (LBS.) 4.1 lbs.
COMMENTS 30-06 - Rounds

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>

SAAMI DROP TEST

TEST TITLE STAINLESS STEEL D.A.
REPORT # 720431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# C. 6706174 TRIGGER PULL (LBS.) 4.2 lbs
COMMENTS 280 Rem - Drums

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL; BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>X</u> Bolt Handle broke off
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>

SAAMI DROP TEST

TEST TITLE Stainless Steel L.A.
REPORT # 720431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# 06678176 TRIGGER PULL (LBS.) 4.4 lb.
COMMENTS 270 win - 0 rounds

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>

SAAMI DROP TEST

TEST TITLE STainless Steel D.A.
REPORT # 920431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# C6678193 TRIGGER PULL (LBS.) 4.2 lb
COMMENTS 338 Win Mag - 10,000 rds

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>

SAAMI DROP TEST

TEST TITLE STainless Steel D.A.
REPORT # 920431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# C6678188 TRIGGER PULL (LBS.) 5.1 lbs
COMMENTS 300 Win Mag - 10,000 rds

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>

SAAMI DROP TEST

TEST TITLE STAINLESS STEEL D.A.
REPORT # 920431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# C6678181 TRIGGER PULL (LBS.) 5 lbs
COMMENTS 7mm Rem Mag - 10,000 rds.

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>

SAAMI DROP TEST

TEST TITLE STAINLESS STEEL D.A.
REPORT # 920431 W.O.# 481167 DATE 4/21/92
MODEL 700 SERIAL# C6678174 TRIGGER PULL (LBS.) 4.3 lbs.
COMMENTS 7mm Wby Mag - 10,000 rds.

SAAMI SPEC: JAR OFF TEST IS 12 INCH DROP, WITH SAFE IN "OFF" POSITION, MEASURED FROM THE LOWEST POINT OF GUN.
ONE DROP IN EACH OF THE FOLLOWING POSITIONS AGAINST A 1 INCH, 85 +/- 5 DUROMETER "SHORE A" RUBBER MAT BACKED BY CONCRETE.

12 INCH DROP (SAFE OFF)

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

48 INCH DROP (SAFE ON)

NOTE: DROP IS 48 INCHES FROM THE CENTER OF GRAVITY OF THE FIREARM

BARREL VERTICAL, MUZZLE UP	<u>OK</u>
BARREL VERTICAL, MUZZLE DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM DOWN	<u>OK</u>
BARREL HORIZONTAL, BOTTOM UP	<u>OK</u>
BARREL HORIZONTAL, LEFT SIDE UP	<u>OK</u>
BARREL HORIZONTAL, RIGHT SIDE UP	<u>OK</u>

"ROTATION TEST"

BUTT ON MAT, LET FIREARM FALL TO LEFT AND RIGHT

LEFT SIDE UP	<u>OK</u>
RIGHT SIDE UP	<u>OK</u>