

Xc: W.H. Coleman, II
J.W. Bower
T.C. Douglas
File

XP-100 CALIBER 223 REM. BOLT ACTION PISTOL
DESIGN CONFIRMATION TEST REPORT

Introduction

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design confirmation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offering will add one more caliber to the existent XP-100 product line.

Test Conclusion - Results

The XP-100 caliber 223 Rem. single shot bolt action pistol design confirmation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted September 30, 1985.

Test Data - Comments:

A. Accuracy

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. center-fire cartridge is to be considered for the XP-100 pistol as a varmint cartridge. Accuracy testing results are as follows:

1. Plant range and plant gallery accuracy test device data for 5 shot groups: average = 3.75, min = 0.35, max = 8.8 inches. This data indicates plant gallery test problems when compared to Research hand fired results. 1983 XP-100 caliber 223 Rem. test data also indicates larger group sizes when fired from the gallery device.

2. Research hand fired 100 yard range data:

a. 5 shot groups, 2 groups per gun with a 12x scope.

12 inch twist data:

avg. = 1.72, sigma = 0.55, avg. + 3 sigma = 3.37

14 inch twist data:

avg. = 1.58, sigma = 0.34, avg. + 3 sigma = 2.68

b. Best 4 shots in 5 shot group data

12 inch twist data:

avg. = 1.14, sigma = 0.47, avg. + 3 sigma = 2.55.

14 inch twist data:

Avg. = 0.98, sigma = 0.30, avg. + 3 sigma = 1.88.

c. Best 3 shots in 5 shot group data

12 inch twist data:

avg. = 0.67, sigma = 0.24, avg. + 3 sigma = 1.48

14 inch twist data:

avg. = 0.64, sigma = 0.13, avg. + 3 sigma = 1.03.

3. Based on Research hand fired XP-100 yard data the following accuracy specs. are proposed:

a. 5 shots group size to be 3.0 inches.

b. 4 shots group size to be 2.0 inches.

c. 3 shots group size to be 1.0 inches.

B. Endurance

Consisted of firing test gun B7512507, held in a soft mount fixture, a total of 1100 fired rounds.

1. No malfunctions were encountered.

2. No breakages were encountered.

3. One adjustment was required.

The bolt stop pivot pin fell out due to lack of stake at assembly. —

C. Functional Performance

The functional performance indicated no extraction, ejection, loading or firing related malfunctions were encountered while firing endurance and accuracy testing of the ten XP-100 design confirmation test pistols.

D. Additional Items

Additional items related to the XP-100 Pistol and the 223 Rem. cartridge program are as follows:

1985 sports writer samples for review.

XP-100 Zytel stock color variations.

223 Rem. vs. 5.56mm chambers.

1. The 1985 Sports Writer acceptance of the XP-100 caliber 223 Rem. was well received, guns performed well, and guns looked good.

2. XP-100 Zytel stock color variations consisted of sending one black stock with the sport writer's gun sample. As of this date no word has been received related to interest or disinterest in a black color XP-100 Zytel stocks.

3. 223 Rem. vs. 5.56mm chambers testing consisted of shooting 100 yard accuracy with one 12 inch twist and one 14 inch twist with the 223 Rem. chamber, recut the 223 Rem. chamber throating to that of 5.56mm, and reshooting accuracy. The accuracy results are as follows:

a. 5 shot groups, 6 groups per gun with 12x scope.
12 inch twist data, 223 Rem.

ave. = 1.62, sigma = 0.24, ave + 3 sigma = 2.34

14 inch twist data, 223 Rem.

ave. = 1.84, sigma = 0.27, ave + 3 sigma = 2.65

12 inch twist data, 5.56mm

ave. = 2.05, sigma = 0.31, ave + 3 sigma = 2.98

14 inch twist data, 5.56mm

ave. = 1.98, sigma = 0.53, ave. + 3 sigma = 3.57

- E. A Remington employee aided testing with firing his XP-100 223 Rem. pistol for group size with lab test ammo. The XP-100 was fabricated a while back in the Custom Shop. XP-100 pistol -RPLHP-5 shot groups @ 100 yards was 0.73 in. ave for 3 groups.
- F. Future work related to XP-100 pistol product line development includes the following item activity:
1. Investigate the feasibility of powder coating the present Zytel stock for color variations and surface texture variations. (1986)
 2. Investigate the feasibility of molding the stock out of ST801 (Super Tough 801) instead of with 101 Zytel, which is prone to cracking and additional machine operations require annealing for 1.5 hours in boiling water. ST801 may not require this anneal operation. (1986).
 3. Determine endurance feasibility of the current production Zytel stock with a caliber 35 Rem. pistol. If endurance results are acceptable, this may warrant Zytel stock mold cavity change considerations/review such as to accomodate a larger barrel channel required for 35 Rem. barrel dimensions. (1987)
 4. Investigate the feasibility of purchasing vendor XP-100 stocks for 35 Rem. caliber pistols. Stocks would be of the nonbedding stock variety. (1987)
 5. Investigate other pistol or centerfire rifle cartridges considerations for the XP-100 product line. (250 Savage - 1988), 17 Rem. -1989).
 6. Investigate the feasibility of interchanging barrels on the XP-100. (1986+)

AAHUGICK:js
1/7/86

DATE 10 02 85

[illegible]

GALLERY TARGETS DATA.

#	SHOTS	VERT.	HORIZ.	SPEED
1	7	5.20	2.90	5.40
2	6	3.60	1.35	3.80
3	5	1.65	2.15	2.70
4	4	1.50	0.40	1.50
5	4	1.20	1.80	1.85
6	4	8.70	0.70	8.80
7	5	3.10	1.05	3.35
8	6	3.90	0.80	3.90
9	3	0.70	0.35	0.80
10	5	1.15	1.10	4.60
11	4	0.25	0.35	0.35
12	4	0.20	0.55	0.60
13	4	1.40	0.80	1.60
14	7	5.30	4.10	5.90
15	5	4.10	2.85	4.6
16	4	1.65	0.50	1.7
17	4	1.05	0.95	1.1
18	6	3.10	1.60	3.4
19	7	5.40	1.20	5.3
20	5	6.25	2.50	6.8
21	6	3.25	5.35	5.1
22	6	2.35	4.95	5.1
23	7	7.50	2.45	7.1
24	6	6.60	1.95	6.1
25	7	3.65	0.80	3.1
26	3	0.80	1.00	1.1
27	6	4.30	1.60	4.1
28	4	5.40	2.30	5.1

GALILEY TARGETS DATA

A

	SHOTS	WENT	HORIP.	SPREAD
	6	2.75	3.75	4.15
30	5	4.10	1.10	4.30
31	5	5.30	1.80	5.45
32	5	1.85	1.65	2.45
33	7	2.60	1.20	2.8.
34	4 ¹⁷¹⁰⁻²⁰	1.85	2.05	2.12
	<u>AVE.</u>	<u>3.29</u>	<u>1.76</u>	<u>3.75</u>
	<u>140</u>	TARGET ROLL ROUN		
		WITH "SCALE 10/3/85		
		AA HUGLICK		

11.7

39.95

127.5

NOTE:

ALL BULLET HOLES WERE ROUND-CLEAR
HOLE WITH NO KEY HOLE INDICATIONS
WHAT SO EVER.

14 INCH TWIST

XP100 223 REM PISTOLS

RESIACH FIRING (YCB) - PLHP AMMO - 500FT

5 SHOT GROUPS - 10/9/85 - ILIEN RESIACH 100 RANGE

$\bar{X} = 1.58$

$\sigma = 0.34$

$\bar{X} + 3\sigma = 2.68$

12 INCH TWIST

PROPOSED SPACS

$\bar{X} = 1.72$

$\sigma = 0.55$

$\bar{X} + 3\sigma = 3.37$

55 NOT INCHES - GROUP SIZE CENTER - 70 - CENTER

12 INCH TWIST

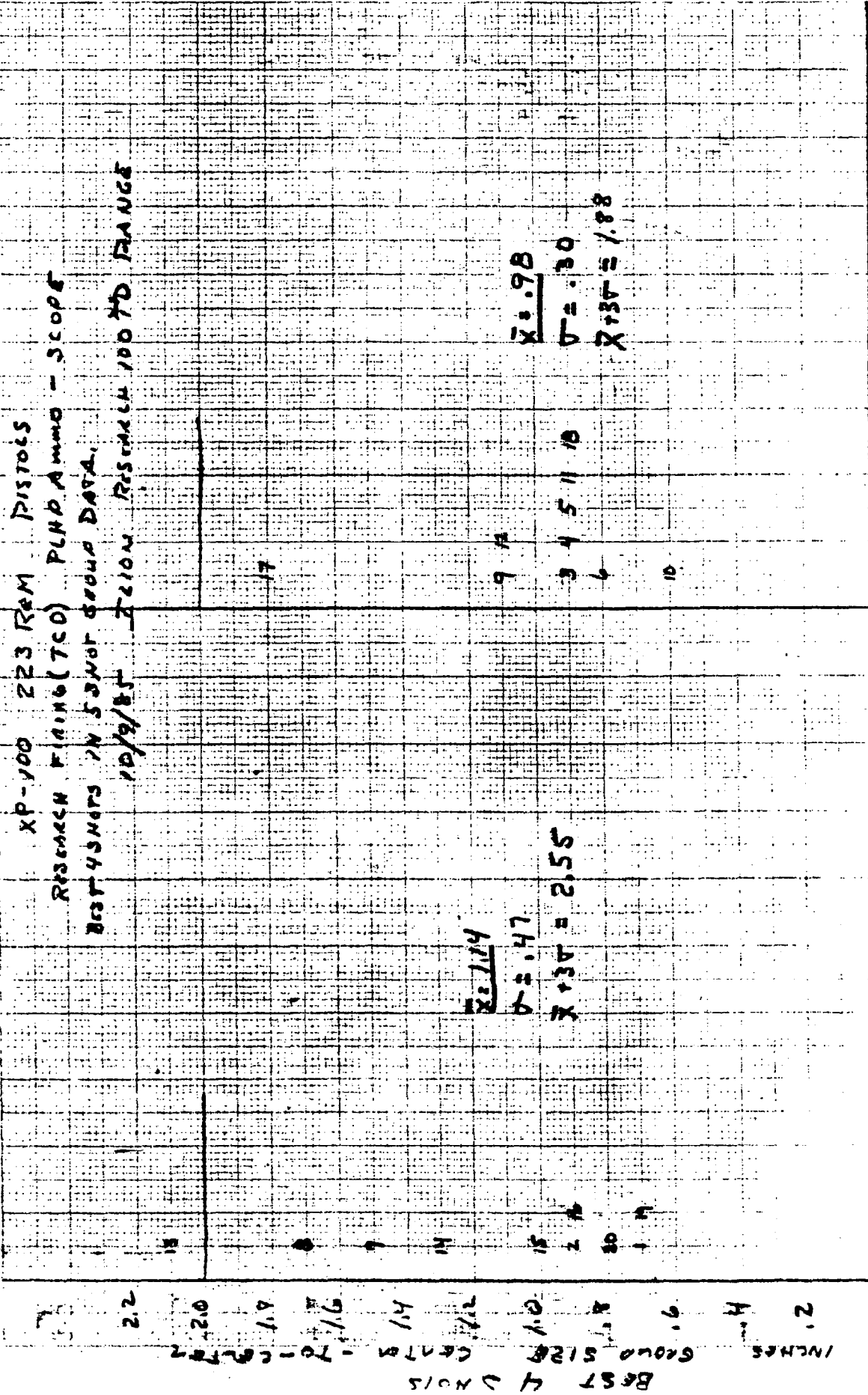
XP-100 223 REM PISTOLS

RESEARCH FIRING (TCD) PLHD AMMO - SCOPE

BEST 4 SHOTS IN 5 SHOT GROUP DATA.

10/9/85 ZION RESEARCH 100 YD RANGE

14 INCH 7 WISE



10/9/85

12 INCH TWIST

14 INCH TWIST

RESEARCH XP100 223 REM PISTOLS
 REMARKS FINING (TCD) - PLMP Ammo - SCORP
 BEST 3 SHOTS 1/10 5 SHOT GROUP DATA.

1972/85 TULLON RESEARCH BOYD RAYMOND

2.4

2.2

2.0

1.8

1.6

1.4

1.2

1.0

.8

.6

.4

.2

BEST 3 SHOTS - INCHES - GROUND S/R - CENTER-TO-CENTER

$$\bar{X} = .67$$

$$S = .24$$

$$\bar{X} + 3S = 1.48$$

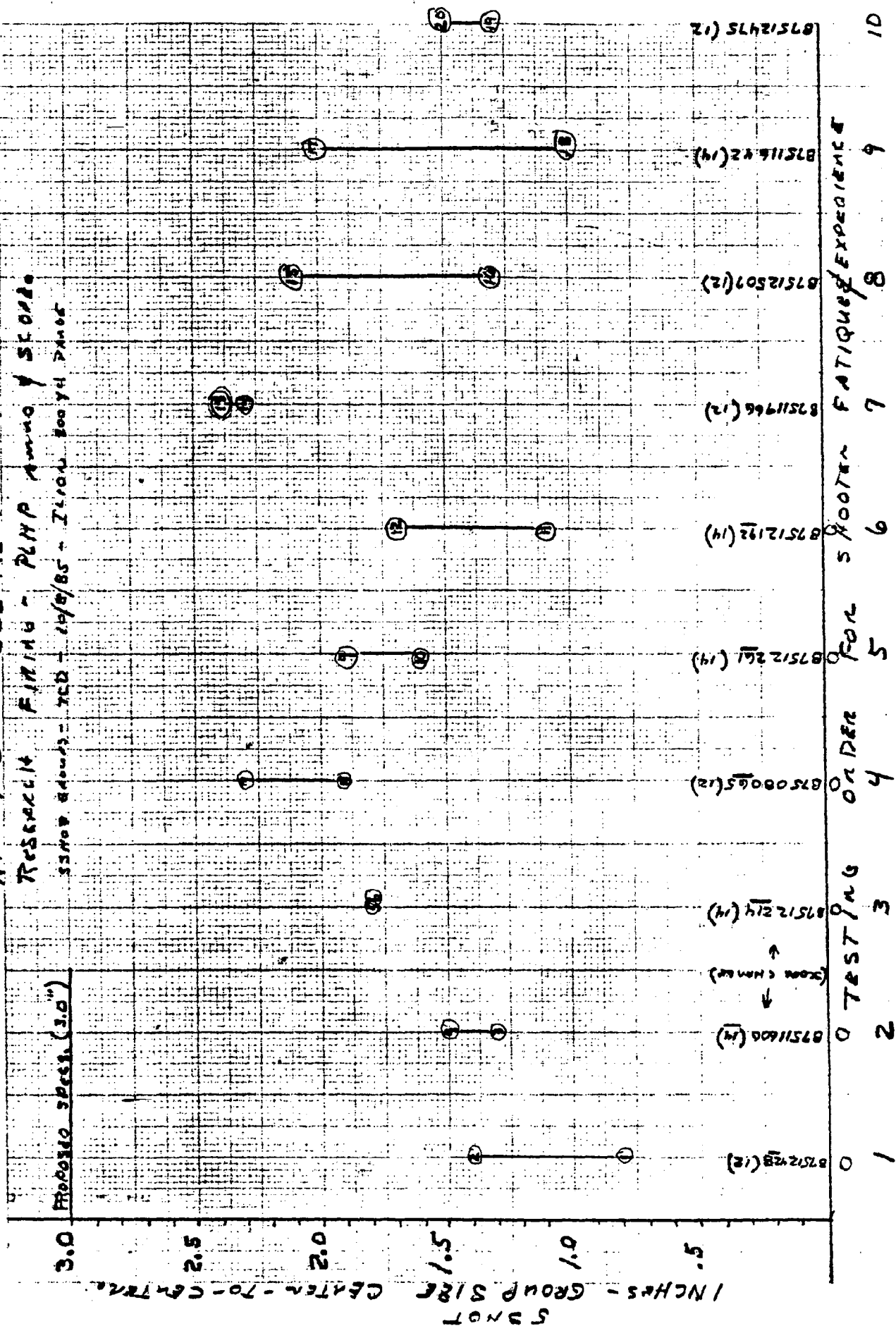
$$\bar{X} = .64$$

$$S = .13$$

$$\bar{X} + 3S = 1.03$$

10/10/85 A

XP-100 223 Rem. Pistols
 Research Firing - PLHP Ammo & Scores
 33 Nov 84 - 10/8/85 - 11 Nov 85 - 12 Nov 85



Remington Targets Data

Gun (Twist)	53 Shots	Best 4 Shots	Best 23 Shots
608 - 3	1.318	.90	.60
- 4	1.512	.90	.75
214 - 5	1.792	.90	.50
- 6	1.829	.80	.70
261 - 9	1.889	1.05	.55
- 10	1.628	.60	.60
192 - 11	1.093	.85	.45
- 12	1.695	1.10	.90
642 - 17	2.024	1.75	.70
- 18	1.014	.90	.60
	$\bar{x} = 1.58$	$= 0.98$	$= 0.64$
	$\sigma = 0.34$	$= 0.30$	$= 0.13$
	$\bar{x} + 3\sigma = 2.68$	$= 1.88$	$= 1.03$
428 - 1 (12" Twist)	.798	.70	.45
- 2	1.397	.90	.40
065 - 7	2.322	1.45	1.20
- 8	1.915	1.65	0.90
766 - 13	2.428	2.10	.70
- 14	2.251	1.30	.90
507 - 15	2.105	1.00	.40
- 16	1.251	.85	.60
475 - 19	1.314	.65	.40
- 20	1.468	.80	.70
	$\bar{x} = 1.72$	$= 1.14$	$= .67$
	$\sigma = 0.55$	$= 0.47$	$= .27$
	$\bar{x} + 3\sigma = 3.37$	$= 2.55$	$= 1.48$

10/9/85 A.

RESEARCH TARGETS DATA

		5	4	3
428	(12)	.798	.70	.45
		1.397	.90	.40
606	(14)	1.318	.90	.60
		1.512	.90	.75
214	(14)	1.792	.80	.55
		1.829	1.05	.60
065	(12)	2.322	1.45	.90
		1.915	1.65	.70
261	(14)	1.889	.60	.60
		1.628	.85	.45
192	(14)	1.093	1.10	.70
		1.695	1.75	.60

475 (12)

507 (12)

642 (14)

966 (18) Worst

PREVIOUS
NUMBER
21

DATE: 10/22/85

MODEL: XP100

DATE: 2 2 3

SERIAL NO. B7512507

TEST TITLE: 223 XP/00 ENDUANCE

TTL. NDB. FINED:

TTL MALFUNCTIONS:

HALF-FUNCTION RATE:

"MALFUNCTIONS"

[illegible]
$$578 \approx 600 - 22$$

DATE: 10/24/85 MODEL: XP100 ; VALUE: 223 RCM
TEST TIME: ENDurance - (5 ACK)

SERIAL NO. B7512507
TTL. NOS. FIRED: _____
TTL. MALFUNCTIONS: _____
MALFUNCTION RATE: _____

“MULTIPLICATION”

Oct 28, 1986
Tulsa, Ok

DESIGN CHANGE REQUEST (DCR) ✓

OR

TRANSMITTAL OF DRAWINGS/PARTS LIST ✓

OR

PARTS LIST CHANGE NOTICE (PLCN) ✓

Requested By	Changed By	Date
T.C. DOUGLAS	A.A. HUGGCK	10/23/85
Originating Date	Transmittal Date	
10/22/85		

Model	PART NAME/LIST	Drawing No.	Part No.
XP-100	BARREL ASSEMBLY COMPLETE	B31560	31560, 61, 62
XP-100	BARREL	C34945	34945, 46
XP-100	BARREL ASSEMBLY	C34950	34950, 51
	CHAMBER DRAWING-223 REM- "REM. ONLY"	L4507	
	CHAMBER DRAWING-223 REM- "INQUIRIES"	L4507	

Dwg. NO.	Rev. No.	DESIGN CHANGE
B31560		INITIAL TRANSMITTAL FOR MRP & 223 REM ADDED CALIBER.
C34945	4, 5	223 REM. ADDED.
C34950	11	223 REM. ADDED.
C34950	12	TABULATION FOR MRP ADDED.
L4507 "Rem ONLY"	13, 20	XP100 USE ADDED
L4507 "Inquiries"	13, 15	XP100 USE ADDED
Classification of Change		

- ☒ Initial Transmittal
☐ Functional Change
☐ Safety Mechanism Revision
☐ Appearance

NOTE: Any or all of the above changes require approval of DCR by
Lab Director - New Products Research

☒ Other

Adam A. Huggick
DESIGNER SIGNATURE

Reason for Change:

REV. NO. 4, 5, 11, 12, 19, 20, 13, 15 - INITIAL TRANSMITTAL OF ADDED 223
REM CALIBER TO MODEL XP-100 PISTOL.
REV. NO. 13-14 - UPDATE L4507 "INQUIRIES" DWG TO BE SAME AS
"REM ONLY" DWG.

Disposition of Parts on Hand: (Check Below)

☐ Scrap ☐ Alter ☐ Use Inventory ☐ RD 6589 Attached

(P.E.C: If Part is either scrapped or altered)

APPROVED: _____

223 REM U2 6.56mm

TALGARD DATA.

12 IN. TWIST

A. 14 IN. TWIST

7511966

7511642

	<u>223</u>	<u>5.56</u>	<u>223</u>	<u>5.56</u>
PLND -	1.85 ⁺ , 1.65 ⁺	2.2 ⁺ , 1.6 ⁺	1.90 ⁺ , 1.6 ⁺	2.65 ⁺ , 1.56 ⁺
45NOTS	1.50 ⁺ , 1.00 ⁺	1.25 ⁺ , 1.0 ⁺	1.05 ⁺ , 1.50 ⁺	1.90 ⁺ , 1.25 ⁺
35NOTS	1.40 ⁺ , 0.75 ⁺	1.00 ⁺ , 1.0 ⁺	0.85 ⁺ , 1.00 ⁺	0.80 ⁺ , 0.80 ⁺
ND - 40	1.55 ⁺ , 1.60 ⁺	2.22 ⁺ , 2.44 ⁺	1.80 ⁺ , 1.45 ⁺ (KH)	2.22 ⁺ , 1.64 ⁺
45NOTS	1.40 ⁺ , 1.40 ⁺	1.20 ⁺ , 1.95 ⁺	1.55 ⁺ , 1.40 ⁺	1.85 ⁺ , 1.40 ⁺
35NOTS	0.90 ⁺ , 0.65 ⁺	0.80 ⁺ , 0.85 ⁺	0.85 ⁺ , 0.60 ⁺	1.25 ⁺ , 1.30 ⁺
INFMC-55	1.85 ⁺ , 1.20 ⁺	1.78 ⁺ , 2.06 ⁺	2.10 ⁺ , 2.15 ⁺	1.34 ⁺ , 2.44 ⁺
45NOTS	1.30 ⁺ , 1.20 ⁺	1.20 ⁺ , 1.65 ⁺	1.70 ⁺ , 1.75 ⁺	0.95 ⁺ , 1.90 ⁺
35NOTS	1.15 ⁺ , 0.85 ⁺	0.65 ⁺ , 0.95 ⁺	0.20 ⁺ , 0.85 ⁺	0.40 ⁺ , 1.35 ⁺
6 AMP 16T	23.20	25.80	24.35	27.00
55NOTS	9.70	12.30	11.05	11.85
45NOTS	7.80	8.25	8.95	9.25
35NOTS	5.70	5.25	4.35	5.90
6 AMP	1.29	1.43	1.35	1.50
55NOTS	1.62	2.05	1.84	1.98
45NOTS	1.30	1.38	1.49	1.54
35NOTS	0.95	0.88	0.73	0.98
55NOTS	0.24	0.31	0.27	0.53
45NOTS	0.18	0.35	0.25	0.40
35NOTS	0.28	0.14	0.29	0.38
+3T	2.34	2.98	2.65	3.57
73T	1.84	2.43	2.24	2.74
9T	0.91	1.30	1.60	2.12

OCT. 10, 85 A.

WRITER GUNS

B 7512428 (12), B7511606 (14), B7512214 (14),

B 7508065 (12), B7512261 (14), B7512192 (14)

ACCURACY

TWIST, CHAMBER, BULLET WEIGHTS)

{ B 7511966 (12), B 7511642 (14)

{ F&D 40

{ WIN ~~ESS~~

{ GALLERY 2075 (PSP & PLHP)

{ (223 Rem vs 5.56 GOUT) - F&D 40, WIN ⁵⁵ ~~ESS~~, RPLHP,

ENDURANCE (STOCK)

100 RPS. FACTORY (SAVE PLHP AMMO - GOOD STAMP)

100 RPS. (EXPERIMENTAL PAINTER STOCK)

XP 100 - 223 REM DESIGN TEST

PROGRAM 8-02-85 A.A.H.

1. ^{DONE} OBTAIN TEN 22CFR BARREL BLANKS (MODEL SEVEN)
 - (a) FIVE - 222 REM FOR 14 INCH TWIST
 - (b) FIVE - 223 REM FOR 12 INCH TWIST
2. ^{DONE} TURN BARREL COUPLER 21 AND SET IN LENGTH TO THAT OF 7mm BR REM BARREL BLANK
3. ^{DONE} WITH DRAW FROM WALK HOUSE TEN XP-100 PISTOLS OR 221 CALIBER
4. ^{DONE} HAVE BARRELS^(in construction) REMOVED FROM RECOILERS AND DELIVER ACTIONS TO CUSTOM SHOP
5. ^{DONE} HAVE BARREL CHANNEL OR STOCKS RE CUT TO THAT OF 7mm BR REM BARREL CHANNEL OR OBTAIN TEN STOCKS WITH 7mm BR REM BARREL COUPLER VIA INVENTOR WITH DRAW
6. ^{DONE} HAVE CUSTOM SHOP FABRICATE XP 100 - 223 REM PISTOLS. FIVE TO BE STAMPED (12) FOR 12 INCH TWIST - AND FIVE TO BE STAMPED (14) FOR 14 INCH TWIST
7. ^{DONE} ^(PARTIALLY) PROOF AND ACCURACY TEST ALL TEN PISTOLS WITH 223 REM AMMO. (WITH THICK MATOR BLANKS (R, W, F).)

(A) ACCURACY TEST MAY BE BOTH IN
GALLERY FIRE AND HAND FIRED.

(100 YARD & 200 YARD INDOOR RANGE(S))?

MAKE 126 TEST RESULTS - AND PREPARE
TRANSMITTAL DETAILS FOR XP-100-223 REM.

SELECT ONE (12) AND ONE (14) XP100 PISTON
AND HAVE CHAMBER RE CUT (DEEPEN THROAT)
TO THAT OF 5.56.

RESHOOT ACCURACY OF ALTERED GUN
AND ONE CONTROL GUN.

FINAL 126 SECOND TEST RESULTS AND
COMPARE TO FIRST ACCURACY TEST.

✓ COMMENT: THE LONGER RANGE XP100
BOLT ACTION PISTOL ACCURACY IS EXPECTED
TO BE A FUNCTION OF CHAMBER PRESSURE
VARIATION(S). - A (14) INCH TWIST IS MORE
FOR GIVING THAN A (12) INCH TWIST
BARREL. THE DEEPEN THROATED 5.56
IS EXPECTED TO BE MORE FOR GIVING
THAN A LESSER THROATED 223 REM,
CHAMBER. IF SIGNIFICANT INDICATION
OR ONE GUN WILL INDICATE IF A LARGER
SAMPLE IS REQUIRED FOR VERIFICATION
OF ACCURACY DIFFERENCE.

NOT
TIME

~~1/2~~ WHEN RECUTTING THE 223 REM CHAMBER
TO THE 5.56 CHAMBER STRAIN GAGE(S)
SHOULD BE PLACED ON GUN FOR STRAIN
GAGE PRESSURE DATA AND MUZZLE
VELOCITY IF MEAS / TEST TIME ALLOWED.

REMINGTON ARMS COMPANY, INC.

xc: Firearms Business Team

INTER-DEPARTMENTAL CORRESPONDENCE

Remington
UNCLASSIFIED

PETERS
UNCLASSIFIED

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

Illion, New York
August 2, 1985

EO 237

XP100

TO: T.C. DOUGLAS
O.S. FINDLAY

FROM: J.W. BOWER

NOTES FROM BUSINESS TEAM MEETING

Decisions made at yesterday's meeting that are of interest to you:

- o The 1986 offerings in the Sportsman 78 and XP-100 will be made in .223 caliber, not 5.56 mm. This is in response to SAAMI's recommendation that .223 and 5.56 be considered a dangerous combination.
- o The XP-100 will be introduced as soon as possible in 1986. Based on our previous conversations, I committed to a November 1 transmittal.
- o Marketing requested that the sight be removed from the XP-100.
- o Deer Gun economics were approved. That package should be transmitted as soon as possible.
- o The Business Team reiterated their commitment to introduce the Model 870 Improvements in 1987, and they are prepared to ask for advance funds to accomplish the schedule. Ken Soucy is to review the schedule and determine a "drop dead" date for 1987 introduction. Research needs to be in a position to transmit the package by October 1.
- o The new, one piece centerfire sight, will be phased in as soon as its available. We need to get drawings to MIM as soon as possible.

ADAM

RD 6606

CC: J. White

TO: D. CHRISTIE

ILION RESEARCH DIVISION

FIREARMS WITHDRAWAL ~~XXXXXXXXXXXX~~

DATE 2/5/85

LETTER NO. 2186

QUANTITY 10

MODEL XP-100

CAL/GA. 221 REM WORK ORDER E0237

SERIAL NOS.	XXXX # 5470	B7512261	B751-214
		B7512475	B7512192
		B7511606	B751-420
		B7511966	B7512307
		B7511642	B7508065

REMARKS:

Approval

AMugick:ja

② Xc: W.H. Coleman, II
J.W. Bower
T.C. Douglas
File

① A Husick
see pg 3

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2. Research hand fired 100 yard range data:
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14 inch twist data:
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 - b. Best 4 shots in 5 shot group data
12 inch twist data:
avg. = 1.14, sigma = 0.47, avg. + 3 sigma = 2.55.
14 inch twist data:
Avg. = 0.98, sigma = 0.30, avg. + 3 sigma = 1.88.
 - c. Best 3 shots in 5 shot group data
12 inch twist data:
avg. = 0.67, sigma = 0.24, avg. + 3 sigma = 1.48
14 inch twist data:
avg. = 0.64, sigma = 0.13, avg. + 3 sigma = 1.03.
3. Based on Research hand fired XP-100 yard data the following accuracy specs. are proposed:
 - a. 5 shots group size to be 3.0 inches.
 - b. 4 shots group size to be 2.0 inches.
 - c. 3 shots group size to be 1.0 inches.

B. Endurance

Consisted of firing test gun B7512507, held in a soft mount fixture, a total of 1100 fired rounds.

1. No malfunctions were encountered.
2. No breakages were encountered.
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XP-100 Zytel stock color variations.

223 Rem. vs. 5.56mm chambers.

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ave. = 2.05, sigma = 0.31, ave + 3 sigma = 2.98

14 inch twist data, 5.56mm

ave. = 1.98, sigma = 0.53, ave. + 3 sigma = 3.57

*Seem to have
accuracy, version
12" better than 14"
Twist version
Pg 2-14" better than
12"
Any explanation?*

- E. A Remington employee aided testing with firing his XP-100 223 Rem. pistol for group size with lab test ammo. The XP-100 was fabricated a while back in the Custom Shop. XP-100 pistol -RPLHP-5 shot groups @ 100 yards was 0.73 in. ave for 3 groups.
- F. Future work related to XP-100 pistol product line development includes the following item activity:
 - 1. Investigate the feasibility of powder coating the present Zytel stock for color variations and surface texture variations. (1986)
 - 2. Investigate the feasibility of molding the stock out of ST801 (Super Tough 801) instead of with 101 Zytel, which is prone to cracking and additional machine operations require annealing for 1.5 hours in boiling water. ST801 may not require this anneal operation. (1986).
 - 3. Determine endurance feasibility of the current production Zytel stock with a caliber 35 Rem. pistol. If endurance results are acceptable, this may warrant Zytel stock mold cavity change considerations/review such as to accomodate a larger barrel channel required for 35 Rem. barrel dimensions. (1987)
 - 4. Investigate the feasibility of purchasing vendor XP-100 stocks for 35 Rem. caliber pistols. Stocks would be of the nonbedding stock variety. (1987)
 - 5. Investigate other pistol or centerfire rifle cartridges considerations for the XP-100 product line. (250 Savage - 1988), 17 Rem. -1989).
 - 6. Investigate the feasibility of interchanging barrels on the XP-100. (1986+)

AAHUGICK:js
1/7/86

DATE 10 02 85

[illegible]

GALLERY TARGETS DATA

#	SHOTS	VERT	HORIZ	SCORE
1	7	5.20	2.90	5.40
2	6	3.60	1.35	3.80
3	5	1.65	2.15	2.70
4	4	1.50	0.40	1.50
5	4	1.20	1.80	1.85
6	4	8.70	0.70	8.80
7	5	3.10	1.05	3.35
8	6	3.90	0.80	3.90
9	3	0.70	0.35	0.80
10	5	1.15	4.10	4.60
11	4	0.25	0.35	0.35
12	4	0.20	0.55	0.60
13	4	1.40	0.80	1.60
14	7	5.30	4.10	5.90
15	5	4.10	2.85	4.6
16	4	1.65	0.50	1.7
17	4	1.05	0.95	1.1
18	6	3.10	1.60	3.4
19	7	5.40	1.20	5.3
20	5	6.25	2.50	6.8
21	6	3.25	5.35	5.
22	6	2.35	4.95	5.
23	7	7.50	2.45	7.
24	6	6.60	1.95	6.
25	7	3.65	0.80	3.
26	3	0.80	1.00	1.
27	6	4.30	1.60	4.
28	4	5.40	2.30	5.

GALLERY TARGETS DATA

	SIGHTS	VERT	HORIZ.	SPREAD
	6	2.75	3.75	4.15
30	5	4.10	1.10	4.30
31	5	5.30	1.80	5.45
32	5	1.85	1.65	2.45
33	7	2.60	1.20	2.8.
34	4 ¹⁷⁶	1.85	2.05	2.10
	<u>402</u>	<u>3.29</u>	<u>1.76</u>	<u>3.75</u>

(140)

TARGET ROLL READ

WITH SCALE 10/3/85

A.A. HUGGINS

11.7

37.95

127.50

NOTE:

ALL BULLET HOLES WERE ROUND - CLEAN
HOLE WITH NO KEY HOLE INDICATIONS
WHAT SO EVER.

04 1351 ESEI

5071 3000 CO BERTH 1000000

12 INCH TWIST

14 INCH TWIST

PROPOSED SALES

XP100 223 REM PISTOLS
 RESEARCH FIRING (TCB) - PLHP AMMO - 3000
 5 SHOT GROUPS - 10/8/85 - ITALIAN RESEARCH AND RANGE

5 SHOT GROUPS - 10/8/85 - ITALIAN RESEARCH AND RANGE

3.0
2.5
2.0
1.5
1.0
0.5

$R = 1.72$
 $\sigma = 0.55$
 $R + 3\sigma = 3.37$

$R = 1.58$
 $\sigma = 0.34$
 $R + 3\sigma = 2.68$

10/9/85 A.

12 INCH TUNIST

14 INCH TUNIST

XP-100 223 REM Pistols
Remington-Union City
Best 4 shots in 500 yds DATA.

10/9/85 12100 Remington 100 yds RANGE

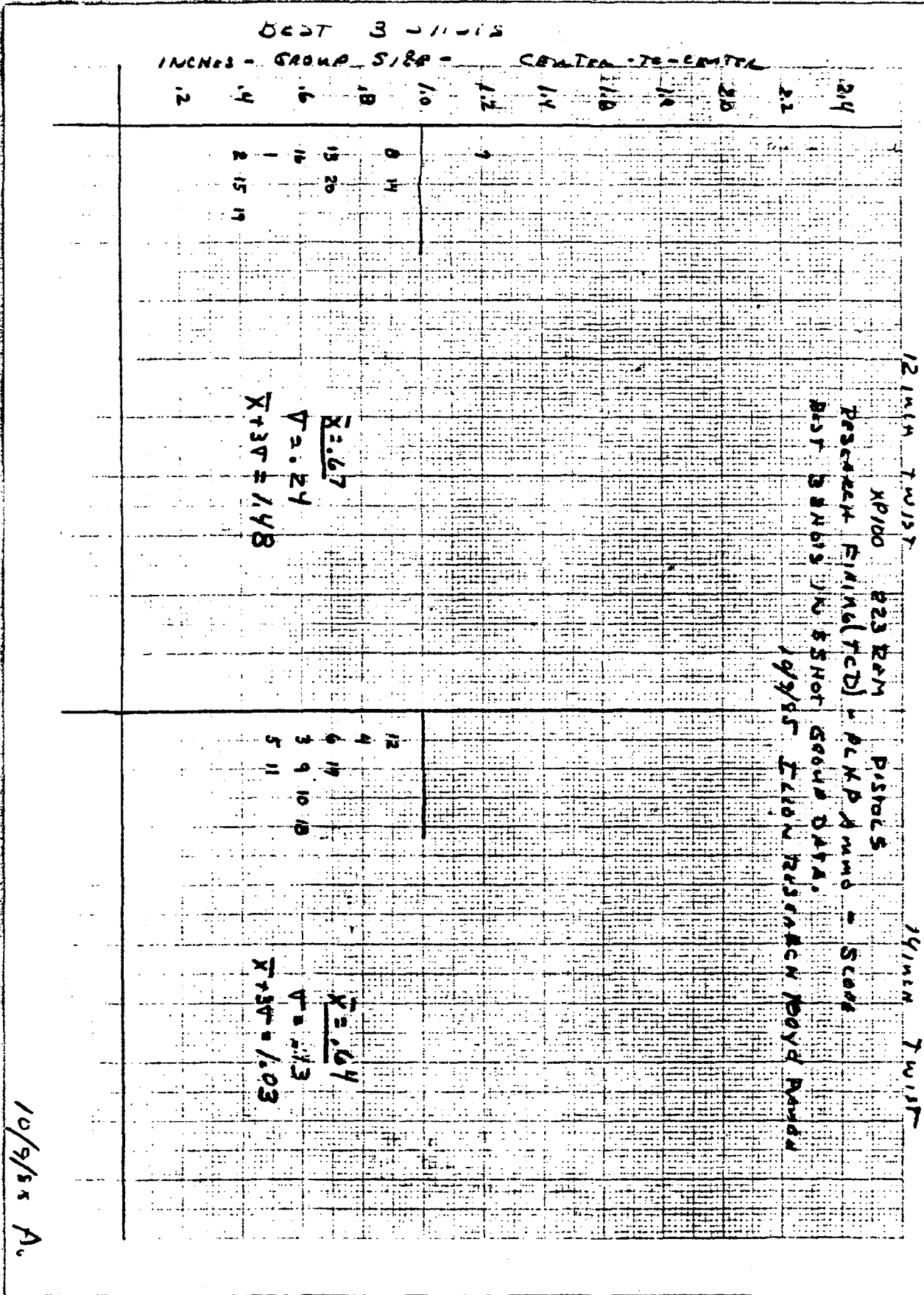
BEST 4 SHOTS
INCHES GROUP SIZE CENTER TO CENTER

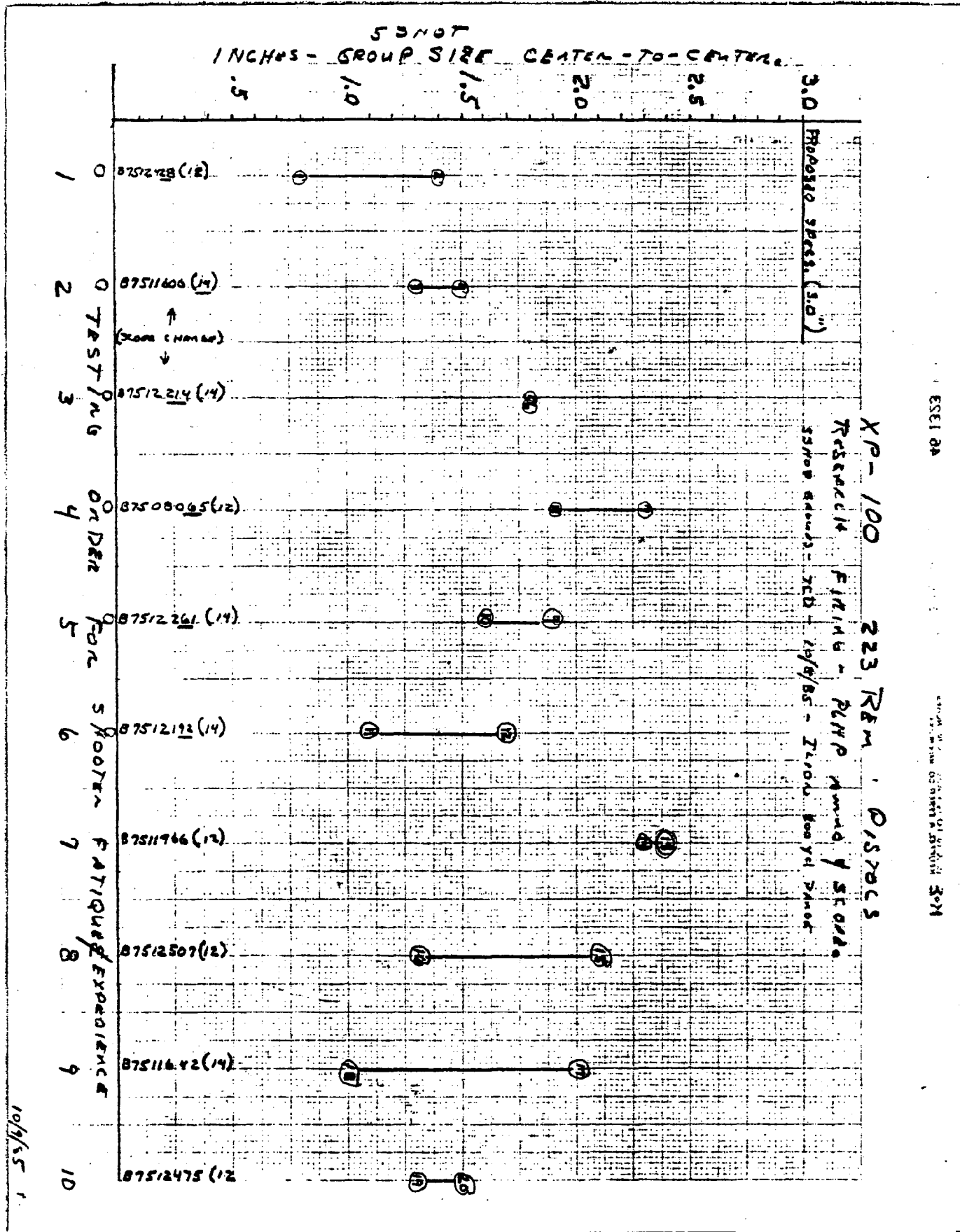
2.2 2.0 1.8 1.6 1.4 1.2 1.0 .8 .6 .4 .2

$\bar{X} = 1.14$
 $\sigma = .47$
 $\bar{X} + 3\sigma = 2.55$

$\bar{X} = 1.98$
 $\sigma = .30$
 $\bar{X} + 3\sigma = 1.88$

10/9/85
A.





40 1331 24

REMINGTON-UNION METALLIC POWDER CO. 307

Remington Targets Data			
SUN (14742)	53 Notes	847 43 Notes	847 22 Notes
608 - 3	1.318	.90	.60
- 4	1.512	.90	.75
214 - 5	1.792	.90	.50
- 6	1.829	.80	.70
261 - 9	1.889	1.05	.55
- 10	1.628	.60	.60
192 - 11	1.093	.85	.45
- 12	1.695	1.10	.90
642 - 17	2.024	1.75	.70
- 18	1.014	.90	.60
	$\bar{x} = 1.58$	= 0.98	= 0.64
	$\sigma = 0.34$	= 0.30	= 0.13
	$\bar{x} + 3\sigma = 2.68$	= 1.88	= 1.03
428 - 1 (12" TWIST)	.798	.70	.45
- 2	1.397	.90	.40
065 - 7	2.322	1.45	1.20
- 8	1.915	1.65	0.90
766 - 13	2.428	2.10	.70
- 14	2.251	1.30	.90
507 - 15	2.105	1.00	.40
- 16	1.251	.85	.60
475 - 19	1.314	.65	.40
- 20	1.465	.80	.70
	$\bar{y} = 1.72$	= 1.14	= .67
	$\sigma = 0.55$	= 0.47	= .27
	$\bar{y} + 3\sigma = 3.37$	= 2.55	= 1.48
10/9/85 A.			

		ROSEN	TARGET	DATA
		5	4	3
428	(12)	.798	.70	.45
		1.397	.90	.40
606	(14)	1.318	.90	.60
		1.512	.90	.75
214	(14)	1.792	.80	.55
		1.829	1.05	.60
065	(12)	2.322	1.45	.90
		1.915	1.65	.70
261	(14)	1.889	.60	.60
		1.628	.85	.45
192	(14)	1.093	1.10	.70
		1.695	1.75	.60

475 (12)

507 (12)

642 (14)

966 (18) WREST

RD-6738 Rev. 2/85

DCR

Sheet

of

DESIGN CHANGE REQUEST (DCR) ✓

OR

TRANSMITTAL OF DRAWINGS/PARTS LIST ✓

OR

PARTS LIST CHANGE NOTICE (PLCN) ✓

Requested By	Changed By	Date
T.C. DOUGLAS	A.A. HUGGK	10/22/85
Originating Date	Transmittal Date	
10/22/85		

Model	PART NAME/LIST	Drawing No.	Part No.
XP-100	BARREL ASSEMBLY COMPLETE	B31560	31560, 61, 62
XP-100	BARREL	C34945	34945, 46
XP-100	BARREL ASSEMBLY	C34950	34950, 51
	CHAMBER DRAWING-223 REM- "REM. ONLY"	LAS07	
	CHAMBER DRAWING-223 REM- "INQUIRIES"	LAS07	

Dwg. NO.	Rev. No.	DESIGN CHANGE
B31560		INITIAL TRANSMITTAL FOR MRP & 223 REM ADDED CALIBER.
C34945	4, 5	223 REM. ADDED.
C34950	11	223 REM. ADDED.
C34950	12	TABULATION FOR MRP ADDED.
LAS07 "Rem"	13, 20	XP100 USE ADDED
LAS07 "Inquiries"	12, 15	XP100 USE ADDED
Classification of Change		

- ☒ Initial Transmittal
☐ Functional Change
☐ Safety Mechanism Revision
☐ Appearance

NOTE: Any or all of the above changes require approval of DCR by
Lab Director - New Products Research

☒ Other

Adam A. Huggk
DESIGNER SIGNATURE

Reason for Change:

REV. NO. 4, 5, 11, 12, 19, 20, 13, 15 - INITIAL TRANSMITTAL OF ADDED 223
REM CALIBER TO MODEL XP-100 PISTOL.
REV. NO. 13, 14 - UPDATE LAS07 "INQUIRIES" DWG TO BE SAME AS
"REM. ONLY" DWG.

Disposition of Parts on Hand: (Check Below)

☐ Scrap ☐ Alter ☐ Use Inventory ☐ RD 6589 Attached

(P.E.C.: If Part is either scrapped or altered)

APPROVED: _____

223 REM US 6.56MM

TARGET DATA

12 IN. TWIST

A. 14 IN. TWIST

7511966

7511642

	<u>223</u>	<u>5.56</u>	<u>223</u>	<u>5.56</u>
PLND -	1.85 ⁺ , 1.65 ⁺	2.24, 1.6 ⁺	1.90 ⁺ , 1.6 ⁺	2.65 ⁺ , 1.56 ⁺
45NOTS	1.50 ⁺ , 1.00 ⁺	1.25 ⁺ , 1.0 ⁺	1.05 ⁺ , 1.50 ⁺	1.90 ⁺ , 1.25 ⁺
25NOTS	1.40 ⁺ , 0.75 ⁺	1.00 ⁺ , 1.0 ⁺	0.85 ⁺ , 1.00 ⁺	0.80 ⁺ , 0.80 ⁺
NO - 40	1.55 ⁺ , 1.60 ⁺	2.22 ⁺ , 2.44 ⁺	1.80 ⁺ , 1.45 ⁺ (KM)	2.22 ⁺ , 1.64 ⁺
45NOTS	1.40 ⁺ , 1.40 ⁺	1.20 ⁺ , 1.95 ⁺	1.55 ⁺ , 1.40 ⁺	1.85 ⁺ , 1.40 ⁺
35NOTS	0.90 ⁺ , 0.65 ⁺	0.80 ⁺ , 0.85 ⁺	0.85 ⁺ , 0.60 ⁺	1.25 ⁺ , 1.30 ⁺
INFMC-55	1.85 ⁺ , 1.20 ⁺	1.78 ⁺ , 2.06 ⁺	2.10 ⁺ , 2.15 ⁺	1.34 ⁺ , 2.44 ⁺
45NOTS	1.30 ⁺ , 1.20 ⁺	1.20 ⁺ , 1.65 ⁺	1.70 ⁺ , 1.75 ⁺	0.95 ⁺ , 1.90 ⁺
35NOTS	1.15 ⁺ , 0.85 ⁺	0.65 ⁺ , 0.95 ⁺	0.20 ⁺ , 0.85 ⁺	0.40 ⁺ , 1.35 ⁺
6 AMP 16T	23.20	25.80	24.35	27.00
55NOTS	9.70	12.30	11.05	11.85
45NOTS	7.80	8.25	8.95	9.25
35NOTS	5.70	5.25	4.35	5.90
6 AMP	1.29	1.43	1.35	1.50
35NOTS	1.62	2.05	1.84	1.98
45NOTS	1.30	1.38	1.49	1.54
35NOTS	0.95	0.88	0.73	0.98
55NOTS	0.24	0.31	0.27	0.53
45NOTS	0.18	0.35	0.25	0.40
35NOTS	0.28	0.14	0.29	0.38
+3T	2.34	2.98	2.65	3.57
73T	1.84	2.43	2.24	2.74
73T	0.91	1.30	1.60	2.12

OCT. 10, 85 A.

WRITER GUNS

B 7512428 (12), B7511606 (14), B7512214 (14),
B 7508065 (12), B7512261 (14), B7512192 (14)

ACCURACY

TWIST, CHAMBER, BULLET WEIGHTS

{ B 7511966 (12), B7511642 (14)

{ F&P 40

{ WIN ~~55~~

{ GALLERY 2075 (PSP & PLHP)

{ (223 Rem vs 5.56 Gout) - F&P 40, WIN ⁵⁵ ~~55~~, RPLHP,

AMMUNITION (STOCK)

100 RPS, FACTORY (SAUC PLHP AMMO - GOODSTARR)

100 RPS, (EXPERIMENTAL PAINTER STOCK)

XP 100 - 223 REM DESIGN TEST

PROGRAM 8-02-85 A.H.

1. ^{DONE} OBTAIN TEN 22 CFR BARREL BLANKS (MODEL SEVEN)
 - (a) FIVE - 222 REM FOR 14 INCH TWIST
 - (b) FIVE - 223 REM FOR 12 INCH TWIST
2. ^{DONE} TURN BARREL CONTOUR 22 AND CUT TO LENGTH TO MATCH OR 27mm BR REM BARREL BLANK
3. ^{DONE} WITH DRAW FROM WALK HOUSE TEN XP-100 PISTOLS OF 221 CALIBER
4. ^{DONE} HAVE BARRELS^(1" CUSTOMER) REMOVED FROM RECEIVERS AND DELIVER ACTIONS TO CUSTOM SHOP
5. ^{DONE} HAVE BARREL CHANNEL OR STOCKS RE CUT TO THAT OF 7mm BR REM BARREL CHANNEL OR OBTAIN TEN STOCKS WITH 7mm BR FOR BARREL CONTOUR VIA INVENTORY WITHDRAWAL
6. ^{DONE} HAVE CUSTOM SHOP FABRICATE XP 100 - 223 REM PISTOLS. FIVE TO BE STAMPED (12) FOR 12 INCH TWIST AND FIVE TO BE STAMPED (14) FOR 14 INCH TWIST.
7. ^{DONE} ^{PART} PROOF AND ACCURACY TEST ALL TEN PISTOLS WITH 223 REM AMMO. (WITH TRACER FOR BARRELS (R, W, F).)

(a) ACCURACY TEST MAY BE BOTH IN
GALLERY - FIXTURE AND HAND FIRED.

(100 YARD & 200 YARD INDOOR RANGE(S))?
FINALIZE TEST RESULTS - AND PREPARE
TRANSMITTAL DETAILS FOR XP-100-223 REM.

DO NOT
SELECT ONE (12) AND ONE (14) XP100 PISTON
AND HAVE CHAMBER CUT (DETERM THROAT)
TO THAT OF 5.56.

DO NOT
RESHOOT ACCURACY OR ALTERED GUN
AND ONE CONTROL GUN.

DO NOT
FINALIZE SECOND TEST RESULTS AND
COMPARE TO FIRST ACCURACY TEST.

223 REM
DO NOT
COMMENT: THE LONG RANGE XP100
BOLT ACTION PISTOL ACCURACY IS EXPECTED
TO BE A FUNCTION OF CHAMBER PRESSURE
VARIATION(S). - A (14) INCH TWIST IS MORE
FOR GIVING THAN A (12) INCH TWIST
BARRELS. THE DETAIL THROATED 5.56
IS EXPECTED TO BE MORE FOR GIVING
THAN A LESSER THROATED 223 REM,
CHAMBER. IF SIGNIFICANT; INDICATION
OR ONE GUN WILL INDICATE IF A LARGER
SAMPLE IS REQUIRED FOR VARIATION
OR ACCURACY DIFFERENCE.

NOT
TIME

~~1/2~~ WHEN RECUTTING THE 223 REM CHAMBER
TO THE 5.56 CHAMBER STRAIN GAGE(S)
SHOULD BE PLACED ON GUN FOR STRAIN
GAGE PRESSURE DATA AND MUZZLE
VELOCITY IF MEAS / TEST TIME ALLOWED.

December 4, 1985

XP-100 Caliber 223 Rem. Bolt Action Pistol
Design Confirmation Test Report

Introduction:

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design confirmation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offerings will add one more caliber to the existent XP-100 product line.

Test Conclusion - Results:

The XP-100 caliber 223 Rem. single shot bolt action pistol design confirmation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted September 30, 1985.

Test Data - Comments:

A. Accuracy:

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. centerfire rifle cartridge is to be considered for the XP-100 pistol as a varmint cartridge. Accuracy

testing results are as follows:

1. Plant range and plant gallery accuracy device test data for 5 shot groups : average = 3.75 , min = 0.35 , max = 8.8 inches . This data indicates plant gallery test problems when compared to Research hand fired results . 1983 XP-100 caliber 223 Rem. test data also indicates larger group sizes when fired from the gallery device .

2. Research hand fired 100 yard range data:

a. 5 shot groups , 2 groups per gun with a 12x scope.

12 inch twist data:

ave. = 1.72, sigma = 0.55, ave + 3sigma = 3.37 .

14 inch twist data:

ave. = 1.58, sigma = 0.34, ave + 3sigma = 2.68 .

b. Best 4shots in 5shot group data

12 inch twist data:

ave. = 1.14, sigma = 0.47, ave + 3sigma = 2.55 .

14 inch twist data:

ave. = 0.98, sigma = 0.30, ave + 3sigma = 1.88 .

c. Best 3shots in 5shot group data

12 inch twist data:

ave. = 0.67, sigma = 0.24, ave + 3sigma = 1.48 .

14 inch twist data:

ave. = 0.64, sigma = 0.13, ave + 3sigma = 1.03 .

3. Based on Research hand fired XP-100 yard data the following accuracy specs. are proposed .

a. 5shots group size to be 3.0 inches .

b. 4shots group size to be 2.0 inches .

c. 3shots group size to be 1.0 inches .

B. Endurance consisted of firing test gun B7512507, held

in a soft mount fixture ,a total of 1100 fired rounds .

1. No malfunctions were encountered .
2. No breakages were encountered .
3. One adjustment was required:

The bolt stop pivot pin fell out due to lack of stake at assembly .

C. Functional Performance indicated no extraction,ejection,loading,or firing related malfunctions were encountered while firing endurance and accuracy testing of the ten XP-100 design conformation test pistols .

D. Additional items related to the XP-100 Pistol and the 223Rem. cartridge program are as follows:

1985 sports writer samples for review .

XP-100 Zytel stock color variations .

223 Rem. vs. 5.56mm chambers .

1. The 1985 Sports Writer acceptance of the XP-100 caliber 223 Rem. was well received, guns performed well, and guns looked good .

2. XP-100 Zytel stock color variations consisted of sending one black stock with the sports writer's gun sample . As of this date no word has been received related to interest or disinterest in a black color XP-100 Zytel stocks .

3. 223 Rem. vs 5.56mm chambers testing consisted of shooting 100 yard accuracy with one 12 inch twist and one 14 inch twist pistol with the 223 Rem. chamber , recut the 223 Rem. chamber throating to that of 5.56mm , and reshooting accuracy . The accuracy results are as follows:

- a.5 shot groups,6 groups per gun with 12x scope.

- 12 inch twist data,223 Rem. :

ave. = 1.62, sigma = 0.24, ave+3sigma = 2.34.

14 inch twist data, 223 Rem. :

ave. = 1.84, sigma = 0.27, ave+3sigma = 2.65.

12 inch twist data, 5.56mm. :

ave. = 2.05, sigma = 0.31, ave+3sigma = 2.98.

14 inch twist data, 5.56mm. :

ave. = 1.98, sigma = 0.53, ave+3sigma = 3.57.

E. A Remington employee aided testing with firing his XP-100 223 Rem. pistol for group size with lab test ammo. The XP-100 was fabricated a while back in the custom shop. XP-100 pistol -RPLHP-5 shot groups @ 100 yards was 0.73 in. ave for 3 groups.

F. Future work related to XP-100 pistol product line development includes the following item activity.

1. Investigate the feasibility of powder coating the present Zytel stock for color variations and surface texture variations . (1986)

2. Investigate the feasibility of molding the stock out of ST801(Super Tough 801) instead of with 101 Zytel ,which is prone to cracking and for additional machine requires annealing for 1.5 hours in boiling water. ST801 may not require this anneal operation. (1986)

3. Determine endurance feasibility of the current production Zytel stock with a caliber 35 Rem. pistol. If endurance results are acceptable , this may warrant Zytel stock mold cavity change considerations/review such as to accomodate a larger barrel channel required for 35 Rem. barrel dimensions . (1987)

4. Investigate the feasibility of purchasing vender

XP-100 stocks for 35 Rem. caliber pistols. Stocks would be of the nonbedding stock variety. (1987)

5. Investigate other pistol or centerfire rifle cartridges considerations for the XP-100 product line. (250 Savage-1988). (17 Rem.-1989).

6. Investigate the feasibility of interchanging barrels on the XP-100. (1986+)

TERRY:

12/11/85

DESIGN TEST REPORT
DRAFT FOR COMMENTS.

XP100223 ADAM.

December 4, 1985

XP-100 Caliber 223 Rem. Bolt Action Pistol

Design Conformation Test Report

DRAFT GIVEN TO T.C. DOUGLAS
12/11/85. A.A.H.

Introduction:

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design conformation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offerings will add one more caliber to the existant XP-100 product line.

Test Conclusion - Results:

The XP-100 caliber 223 Rem. single shot bolt action pistol design conformation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted November 1, 1985.

Test Results:

A. Accuracy:

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. centerfire rifle cartridge is to be considered for the XP-100 pistol as a variment cartridge. Accuracy

testing results are as follows:

1. Plant range and plant gallery accuracy devise test data for 5 shot groups : average = 3.75 , min = 0.35 , max = 8.8 inches . This data indicates plant gallery test problems when compared to Research hand fired results . "1983 XP-100 caliber 223 Rem. test data may indicate large group size data .

2. Research hand fired 100 yard range data:

a. 5 shot groups , 2 groups per gun with a 12x scope.

12 inch twist data:

ave. = 1.72, sigma = 0.55, ave + 3sigma = 3.37 .

14 inch twist data:

ave. = 1.58, sigma = 0.34, ave + 3sigma = 2.68 ..

b. Best 4shots in 5shot group data

12 inch twist data:

ave. = 1.14, sigma = 0.47, ave + 3sigma = 2.55 .

14 inch twist data:

ave. = 0.98, sigma = 0.30, ave + 3sigma = 1.88 .

c. Best 3shots in 5shot group data

12 inch twist data:

ave. = 0.67, sigma = 0.24, ave + 3sigma = 1.48 .

14 inch twist data:

ave. = 0.64, sigma = 0.13, ave + 3sigma = 1.03 .

3. Based on Research hand fired XP-100 yard data the following accuracy specs. are proposed .

a. 5shots group size to be 3.0 inches .

b. 4shots group size to be 2.0 inches .

c. 3shots group size to be 1.0 inches .

B. Endurance consisted of firing test gun B7512507, held

in a soft mount fixture ,a total of 1100 fired rounds .

1. No malfunctions were encountered .
2. No breakages were encountered .
3. One adjustment was required:

The bolt stop pivot pin fell out due to lack of stake at assembly .

C. Functional Performance indicated no extraction,ejection,loading,or firing related malfunctions were encountered while firing endurance and accuracy testing of the ten XP-100 design conformation test pistols .

D. Additional items related to the XP-100 Pistol and the 223Rem. cartridge program are as follows:

- 1985 sports writer samples for review .
- XP-100 Zytel stock color variations .
- 223 Rem. vs. 5.56mm chambers .

1. The 1985 Sports Writer acceptance of the XP-100 caliber 223 Rem. was well received, guns performed well, and guns looked good .

2. XP-100 Zytel stock color variations consisted of sending one black stock with the sports writer's gun sample . As of this date no word has been received related to interest or disinterest in a black color XP-100 Zytel stocks .

3. 223 Rem. vs 5.56mm chambers testing consisted of shooting 100 yard accuracy with one 12 inch twist and one 14 inch twist pistol with the 223 Rem. chamber , recut the 223 Rem. chamber throating to that of 5.56mm , and reshooting accuracy . The accuracy results are as follows:

- a.5 shot groups,6 groups per gun with 12x scope.
- 12 inch twist data,223 Rem. :

ave. = 1.62, sigma = 0.24, ave+3sigma = 2.34.

14 inch twist data, 223 Rem. :

ave. = 1.84, sigma = 0.27, ave+3sigma = 2.65.

12 inch twist data, 5.56mm. :

ave. = 2.05, sigma = 0.31, ave+3sigma = 2.98.

14 inch twist data, 5.56mm. :

ave. = 1.98, sigma = 0.53, ave+3sigma = 3.57.

E. A Remington employee aided testing with firing his XP-100 223 Rem. pistol for group size with lab test ammo. The XP-100 was fabricated a while back in the custom shop. XP-100 pistol -RPLHP-5 shot groups @ 100 yards was 0.73 in. ave for 3 groups.

F. Future work related to XP-100 pistol product line development includes the following item activity.

1. Investigate the feasibility of powder coating the present Zytel stock for color variations and surface texture variations . (1986)

2. Determine endurance feasibility of the current production Zytel stock with a caliber 35 Rem. pistol. If endurance results are acceptable , this may warrant Zytel stock mold cavity change considerations/review such as to accomodate a larger barrel channel required for 35 Rem. barrel dimensions . (1987)

3. Investigate other pistol or centerfire rifle cartridges considerations for the XP-100 product line. (250 Savage-1988), (17 Rem.-1989).

*If this is a design confirmation test it should have been carried by the Test Lab. Why did it take over 2 months to publish the report? Xc: W.H. Coleman, II
J.W. Dower
T.C. Douglas
File
A little late if anyone on the distribution list wanted to react to it! The report raises some questions but never answers them.*

XP-100 CALIBER 223 REM. BOLT ACTION PISTOL

DESIGN CONFIRMATION TEST REPORT

Introduction

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design confirmation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offering will add one more caliber to the existent XP-100 product line.

Test Conclusion - Results

The XP-100 caliber 223 Rem. single shot bolt action pistol design confirmation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted September 30, 1985.

Test Data - Comments:

A. Accuracy

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. center-fire cartridge is to be considered for the XP-100 pistol as a varmint cartridge. Accuracy testing results are as follows:

1. Plant range and plant gallery accuracy test device data for 5 shot groups: average = 3.75, min = 0.35, max = 8.8 inches. This data indicates plant gallery test problems when compared to Research hand fired results. 1983 XP-100 caliber 223 Rem. test data also indicates larger group sizes when fired from the gallery device.

Part of the test was to determine basis which one did we transmit?

2. Research hand fired 100 yard range data:

a. 5 shot groups, 2 groups per gun with a 12x scope.

12 inch twist data:

avg. = 1.72, sigma = 0.55, avg. + 3 sigma = 3.37

14 inch twist data:

avg. = 1.58, sigma = 0.34, avg. + 3 sigma = 2.68

b. Best 4 shots in 5 shot group data

12 inch twist data:

avg. = 1.14, sigma = 0.47, avg. + 3 sigma = 2.55.

14 inch twist data:

Avg. = 0.98, sigma = 0.30, avg. + 3 sigma = 1.88.

c. Best 3 shots in 5 shot group data

12 inch twist data:

avg. = 0.67, sigma = 0.24, avg. + 3 sigma = 1.48

14 inch twist data:

avg. = 0.64, sigma = 0.13, avg. + 3 sigma = 1.03.

3. Based on Research hand fired XP-100 yard data the following accuracy specs. are proposed:

a. 5 shots group size to be 3.0 inches.

b. 4 shots group size to be 2.0 inches.

c. 3 shots group size to be 1.0 inches.

B. Endurance

Consisted of firing test gun B7512507, held in a soft mount fixture, a total of 1100 fired rounds.

1. No malfunctions were encountered.

2. No breakages were encountered.

3. One adjustment was required.

✓
indicates
14" twist
superior.
On page 3
we show
data that
say 12"
twist superior
Resolution?

Xc: W.H. Coleman, II
J.W. Bower
T.C. Douglas
File

XP-100 CALIBER 223 REM. BOLT ACTION PISTOL
DESIGN CONFIRMATION TEST REPORT

Introduction

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design confirmation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offering will add one more caliber to the existent XP-100 product line.

Test Conclusion - Results

The XP-100 caliber 223 Rem. single shot bolt action pistol design confirmation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted September 30, 1985.

Test Data - Comments:

A. Accuracy

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. center-fire cartridge is to be considered for the XP-100 pistol as a varmint cartridge. Accuracy testing results are as follows:

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a. 5 shots group size to be 3.0 inches.

b. 4 shots group size to be 2.0 inches.

c. 3 shots group size to be 1.0 inches.

B. Endurance

Consisted of firing test gun B7512507, held in a soft mount fixture, a total of 1100 fired rounds.

1. No malfunctions were encountered.

2. No breakages were encountered.

3. One adjustment was required.

- E. A Remington employee aided testing with firing his XP-100 223 Rem. pistol for group size with lab test ammo. The XP-100 was fabricated a while back in the Custom Shop. XP-100 pistol -RPLHP-5 shot groups @ 100 yards was 0.73 in. ave for 3 groups.
- F. Future work related to XP-100 pistol product line development includes the following item activity:
 - 1. Investigate the feasibility of powder coating the present Zytel stock for color variations and surface texture variations. (1986)
 - 2. Investigate the feasibility of molding the stock out of ST801 (Super Tough 801) instead of with 101 Zytel, which is prone to cracking and additional machine operations require annealing for 1.5 hours in boiling water. ST801 may not require this anneal operation. (1986).
 - 3. Determine endurance feasibility of the current production Zytel stock with a caliber 35 Rem. pistol. If endurance results are acceptable, this may warrant Zytel stock mold cavity change considerations/review such as to accomodate a larger barrel channel required for 35 Rem. barrel dimensions. (1987)
 - 4. Investigate the feasibility of purchasing vendor XP-100 stocks for 35 Rem. caliber pistols. Stocks would be of the nonbedding stock variety. (1987)
 - 5. Investigate other pistol or centerfire rifle cartridges considerations for the XP-100 product line. (250 Savage - 1988), 17 Rem. -1989).
 - 6. Investigate the feasibility of interchanging barrels on the XP-100. (1986+)

AAHUGICK:js
1/7/86

2 Xc: W.H. Coleman, II
J.W. Bower
T.C. Douglas
File

2 A Hugick
see pg 3

XP-100 CALIBER 223 REM. BOLT ACTION PISTOL —
DESIGN CONFIRMATION TEST REPORT

Introduction

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design confirmation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offering will add one more caliber to the existent XP-100 product line.

Test Conclusion - Results

The XP-100 caliber 223 Rem. single shot bolt action pistol design confirmation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted September 30, 1985.

Test Data - Comments:

A. Accuracy

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. center-fire cartridge is to be considered for the XP-100 pistol as a varmint cartridge. Accuracy testing results are as follows:

1. Plant range and plant gallery accuracy test device data for 5 shot groups: average = 3.75, min = 0.35, max = 8.8 inches. This data indicates plant gallery test problems when compared to Research hand fired results. 1983 XP-100 caliber 223 Rem. test data also indicates larger group sizes when fired from the gallery device.

2. Research hand fired 100 yard range data:

a. 5 shot groups, 2 groups per gun with a 12x scope.

12 inch twist data:

avg. = 1.72, sigma = 0.55, avg. + 3 sigma = 3.37

14 inch twist data:

avg. = 1.58, sigma = 0.34, avg. + 3 sigma = 2.68

b. Best 4 shots in 5 shot group data

12 inch twist data:

avg. = 1.14, sigma = 0.47, avg. + 3 sigma = 2.55.

14 inch twist data:

Avg. = 0.98, sigma = 0.30, avg. + 3 sigma = 1.88.

c. Best 3 shots in 5 shot group data

12 inch twist data:

avg. = 0.67, sigma = 0.24, avg. + 3 sigma = 1.48

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avg. = 0.64, sigma = 0.13, avg. + 3 sigma = 1.03.

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a. 5 shots group size to be 3.0 inches.

b. 4 shots group size to be 2.0 inches.

c. 3 shots group size to be 1.0 inches.

B. Endurance

Consisted of firing test gun B7512507, held in a soft mount fixture, a total of 1100 fired rounds.

1. No malfunctions were encountered.

2. No breakages were encountered.

3. One adjustment was required.

The bolt stop pivot pin fell out due to lack of stake at assembly.

C. Functional Performance

The functional performance indicated no extraction, ejection, loading or firing related malfunctions were encountered while firing endurance and accuracy testing of the ten XP-100 design confirmation test pistols.

D. Additional Items

Additional items related to the XP-100 Pistol and the 223 Rem. cartridge program are as follows:

1985 sports writer samples for review.

XP-100 Zytel stock color variations.

223 Rem. vs. 5.56mm chambers.

1. The 1985 Sports Writer acceptance of the XP-100 caliber 223 Rem. was well received, guns performed well, and guns looked good.

2. XP-100 Zytel stock color variations consisted of sending one black stock with the sport writer's gun sample. As of this date no word has been received related to interest or disinterest in a black color XP-100 Zytel stocks.

3. 223 Rem. vs. 5.56mm chambers testing consisted of shooting 100 yard accuracy with one 12 inch twist and one 14 inch twist with the 223 Rem. chamber, recut the 223 Rem. chamber throating to that of 5.56mm, and reshooting accuracy. The accuracy results are as follows:

a. 5 shot groups, 6 groups per gun with 12x scope.
12 inch twist data, 223 Rem.

ave. = 1.62, sigma = 0.24, ave + 3 sigma = 2.34

14 inch twist data, 223 Rem.

ave. = 1.84, sigma = 0.27, ave + 3 sigma = 2.65

12 inch twist data, 5.56mm

ave. = 2.05, sigma = 0.31, ave + 3 sigma = 2.98

14 inch twist data, 5.56mm

ave. = 1.98, sigma = 0.53, ave. + 3 sigma = 3.57

*Seem to have
accuracy inversion
12" better than 14"
Twist versus
Pg 2-14" better than
12"
Any explanation?*

E. A Remington employee aided testing with firing his XP-100 223 Rem. pistol for group size with lab test ammo. The XP-100 was fabricated a while back in the Custom Shop. XP-100 pistol -RPLHP-5 shot groups @ 100 yards was 0.73 in. ave for 3 groups.

F. Future work related to XP-100 pistol product line development includes the following item activity:

1. Investigate the feasibility of powder coating the present Zytel stock for color variations and surface texture variations. (1986)

2. Investigate the feasibility of molding the stock out of ST801 (Super Tough 801) instead of with 101 Zytel, which is prone to cracking and additional machine operations require annealing for 1.5 hours in boiling water. ST801 may not require this anneal operation. (1986).

3. Determine endurance feasibility of the current production Zytel stock with a caliber 35 Rem. pistol. If endurance results are acceptable, this may warrant Zytel stock mold cavity change considerations/review such as to accomodate a larger barrel channel required for 35 Rem. barrel dimensions. (1987)

4. Investigate the feasibility of purchasing vendor XP-100 stocks for 35 Rem. caliber pistols. Stocks would be of the nonbedding stock variety. (1987)

5. Investigate other pistol or centerfire rifle cartridges considerations for the XP-100 product line. (250 Savage - 1988), 17 Rem. -1989).

6. Investigate the feasibility of interchanging barrels on the XP-100. (1986+)

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1/7/86

DATE 100285

[illegible]

#	SHOTS	WEST	NORTH	STEEP
1	7	5.20	2.90	5.40
2	6	3.60	1.35	3.80
3	5	1.65	2.15	2.70
4	4	1.50	0.40	1.50
5	4	1.20	1.80	1.85
6	4	8.70	0.70	8.80
7	5	3.10	1.05	3.35
8	6	3.90	0.80	3.90
9	3	0.70	0.35	0.80
10	5	1.15	4.10	4.60
11	4	0.25	0.35	0.35
12	4	0.20	0.55	0.60
13	4	1.40	0.80	1.60
14	7	5.30	4.10	5.90
15	5	4.10	2.85	4.6
16	4	1.65	0.50	1.7
17	4	1.05	0.95	1.1
18	6	3.10	1.60	3.4
19	7	5.40	1.20	5.3
20	5	6.25	2.50	6.8
21	6	3.25	5.35	5.1
22	6	2.35	4.95	5.1
23	7	7.50	2.45	7.1
24	6	6.60	1.95	6.1
25	7	3.65	0.80	3.1
26	3	0.80	1.00	1.1
27	6	4.30	1.60	4.1
28	4	5.40	2.30	5.1

GRACEY TARGET DATA

A

	STOPS	WIND	HORIZ.	SPREAD
	6	2.75	3.75	4.15
30	5	4.10	1.70	4.30
31	5	5.30	1.80	5.45
32	5	1.85	1.65	2.45
33	7	2.60	1.20	2.8.
34	4 ¹⁷¹⁰⁻²⁰	1.85	2.05	2.12
	<u>AVG</u>	<u>3.29</u>	<u>1.76</u>	<u>3.75</u>

140

TARGET ROLL 1200
WITH "SCALE 10/3/85
A A HUGLICK

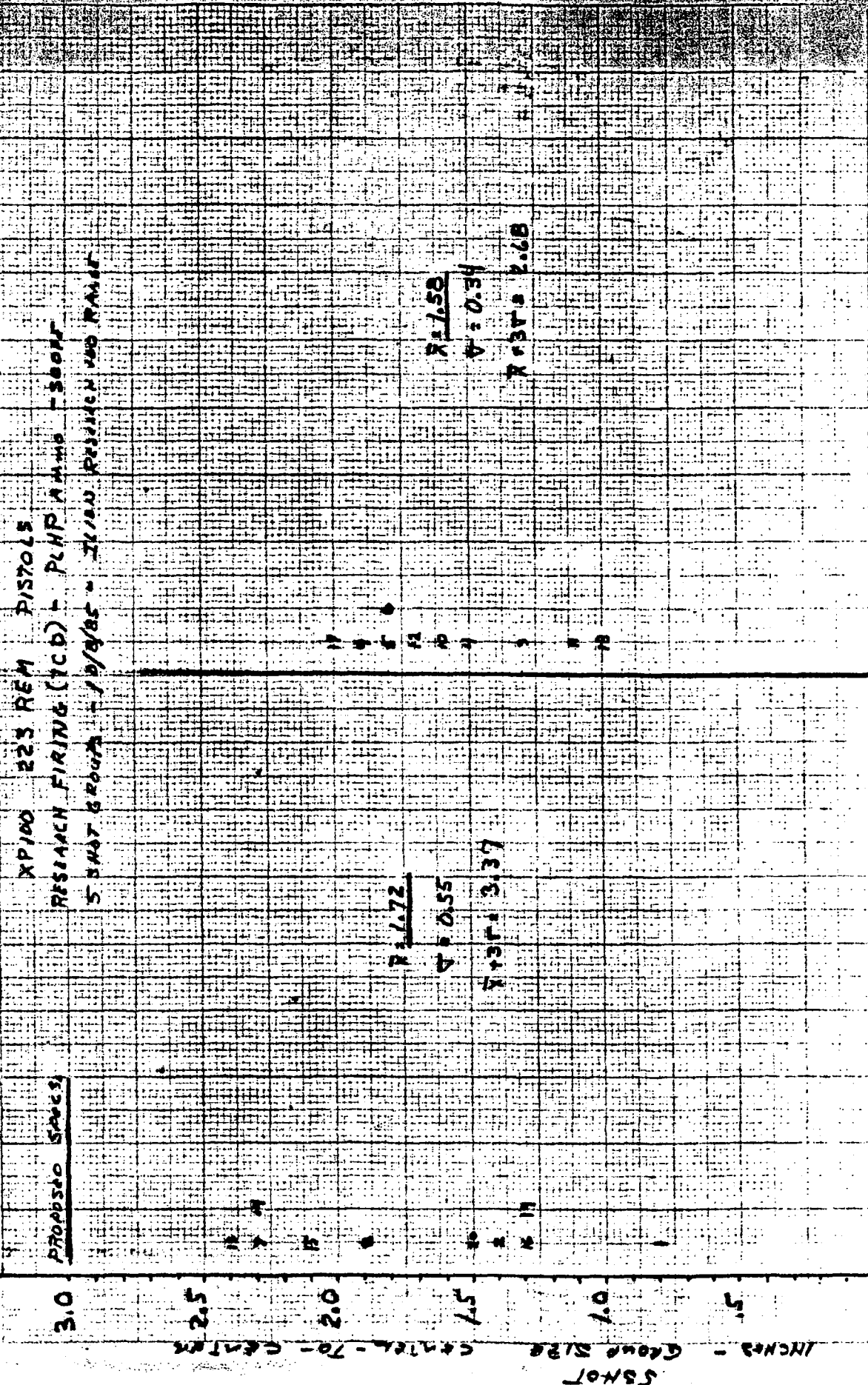
11.7 39.95 127.35

NOTE:

ALL BULLET HOLES WERE ROUND-CLEAN
HOLE WITH NO KEY HOLE INDICATIONS
WHAT SO EVER.

14 INCH TWIST

12 INCH TWIST



10/6/85

14 INCH TWIST

PISTOLS

XP-100 223 REM

RESEARCH FIDING (TCD) PLHP AMMO - SCOPE

BEST 43 HITS IN 500 YD GROUP DATA.

10/9/85 BELOW RESEARCH 100 YD RANGE

12 INCH TWIST

BEST 4 HOLES
GROUP SIZE - 10 - 10
INCHES
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0

117.2

14.47

55.2 = 2.55

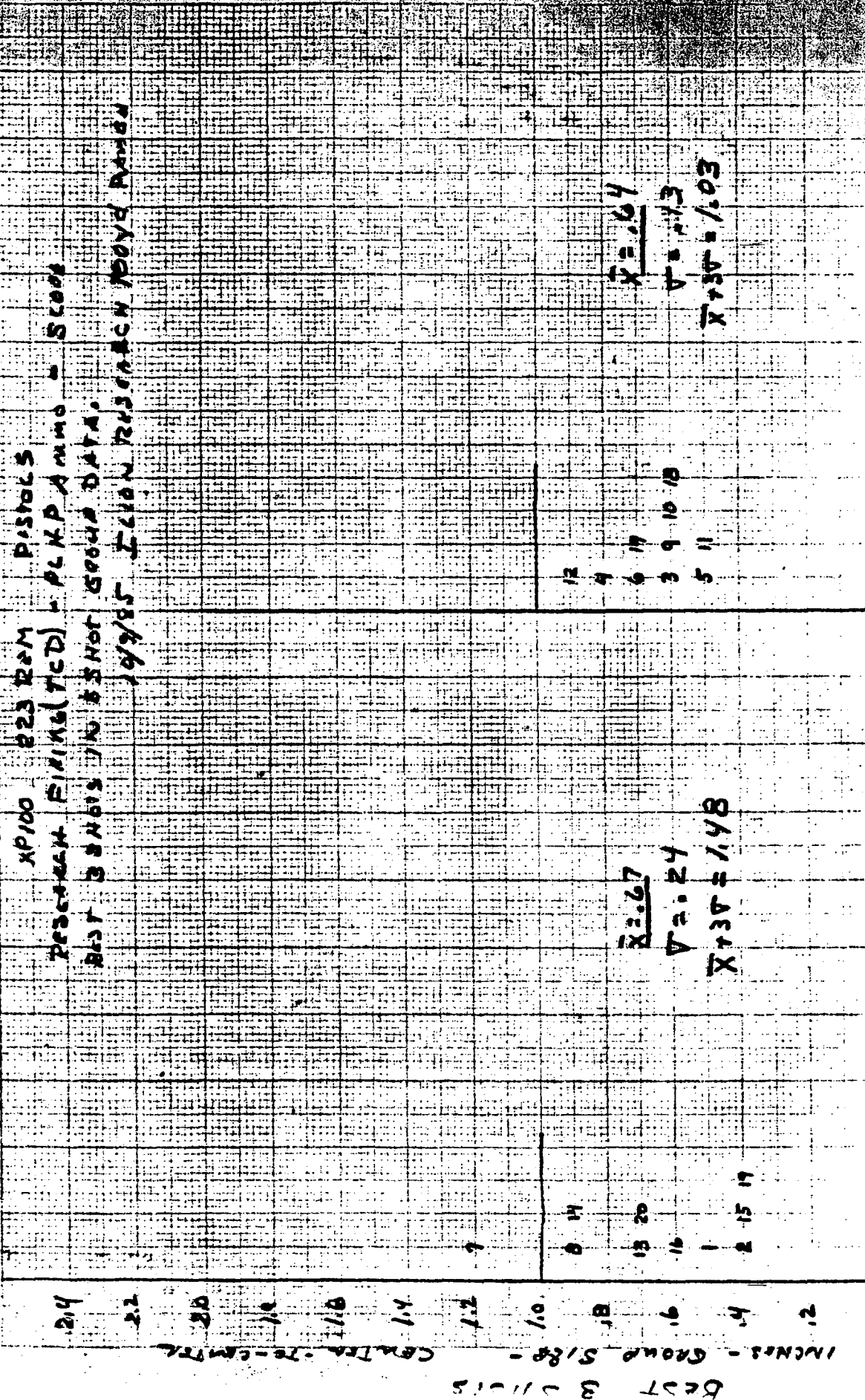
117.2

14.47

55.2 = 2.55

12 inch Twist

14 inch Twist

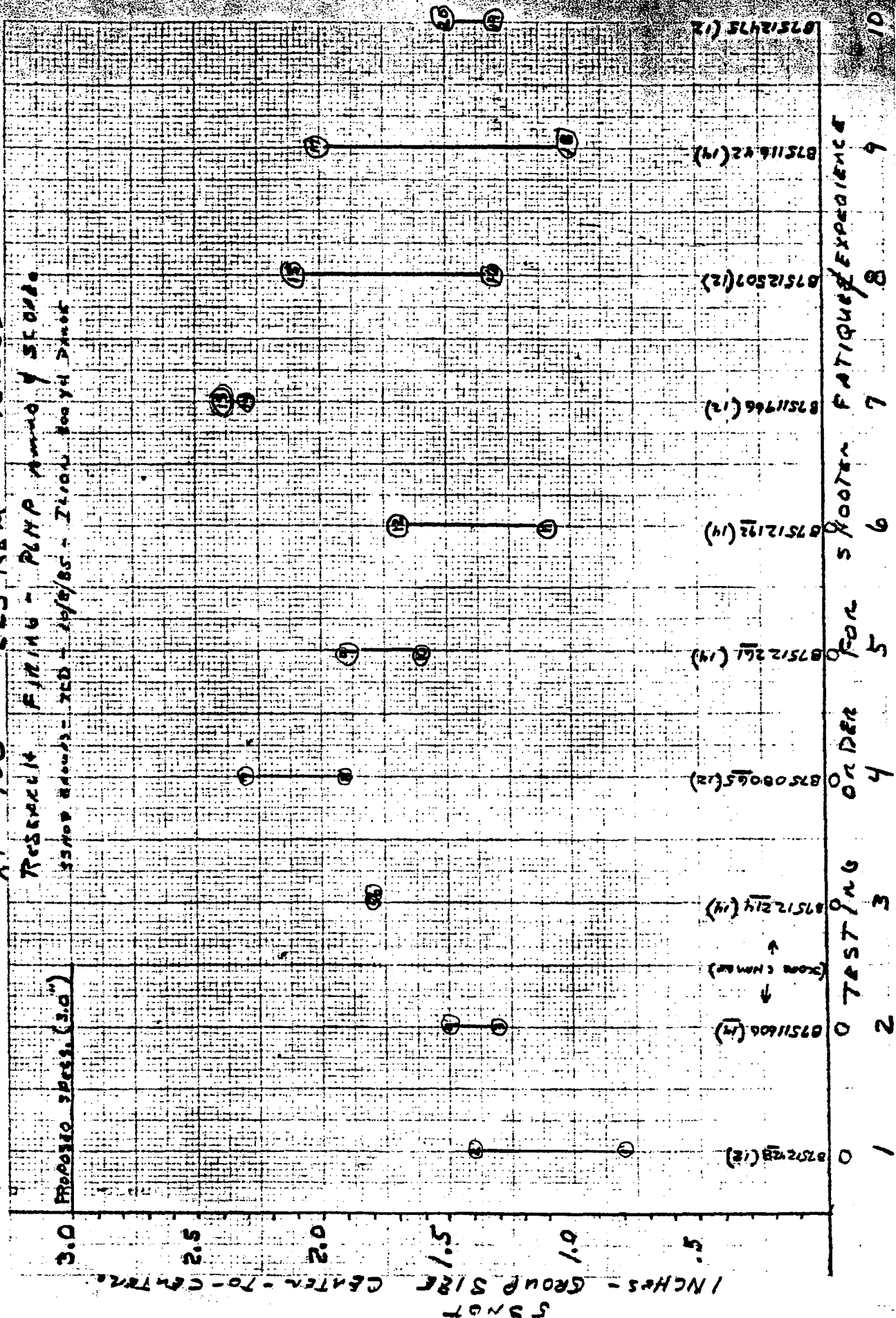


10/6/85 A.

XP-100 223 REM. DISCOS

RESEARCH FIRMING - PUMP Ammo y SCORING

33 NOV 84 00:13 - TED - 10/8/85 - 11:00 AM 00:14 00:15



53 notes			
6408 - 3	1.313	.90	.60
- 4	1.512	.90	.75
214 - 5	1.792	.90	.50
- 6	1.829	.80	.70
261 - 9	1.889	1.05	.55
- 10	1.628	.60	.60
192 - 11	1.093	.85	.45
- 12	1.695	1.10	.90
642 - 17	2.024	1.75	.70
- 18	1.014	.90	.60
$\bar{x} = 1.58$	=	0.98	= 0.64
$\sigma = 0.34$	=	0.30	= 0.13
$\bar{x} + 3\sigma = 2.68$	=	1.88	= 1.03
428 - 1 (12" twist)	.798	.70	.45
- 2	1.397	.90	.40
065 - 7	2.322	1.45	1.20
- 8	1.915	1.65	0.90
166 - 13	2.428	2.10	.70
- 14	2.251	1.30	.90
507 - 15	2.105	1.00	.40
- 16	1.251	.85	.60
475 - 19	1.314	.65	.40
- 20	1.468	.80	.70
$\bar{x} = 1.72$	=	1.14	= .67
$\sigma = 0.55$	=	0.47	= .27
$\bar{x} + 3\sigma = 3.37$	=	2.55	= 1.48

10/9/85 A.

RESEARCH TARGET DATA

		5	4	3
428	(12)	.798	.70	.45
		1.397	.90	.40
606	(14)	1.318	.90	.60
		1.512	.90	.75
214	(14)	1.792	.80	.55
		1.829	1.05	.60
065	(12)	2.322	1.45	.90
		1.915	1.65	.70
261	(14)	1.889	.60	.60
		1.628	.85	.45
192	(14)	1.093	1.10	.70
		1.695	1.75	.60

475 (12)

507 (12)

642 (14)

966 (18) WALST

DATE: 10/22/85

DATE: 2 2 3

SERIAL NO. B7512507

TEST TITLE: 223 XP/100 ENDURANCE

TTL. NDS. FINED:
TTL. MALFUNCTIONS
MALFUNCTION RATE:

"HALF FUNCTIONS"

[illegible]
$$578_{21} = 600_{10} + 18_{10}$$

DATE: 10/24/85 Model: XP100 : DATE: 223RCM
TEST TITLE: ENDURANCE - (SAC) TTL. NOS. FIRED:
TTL. MALFUNCTIONS:
MALFUNCTION RATE:

“Restrictions”

[illegible]

DESIGN CHANGE REQUEST (DCR)

OR

TRANSMITTAL OF DRAWINGS/PARTS LIST

OR

PARTS LIST CHANGE NOTICE (PLCN)

Requested By	Changed By	Date
T.C. DOUGLAS	A.A. HUGGCK	10/22/85
Originating Date	Transmittal Date	
10/22/85		

Model	PART NAME/LIST	Drawing No.	Part No.
XP-100	BARREL ASSEMBLY COMPLETE	B31560	31560, 61, 62
XP-100	BARREL	C34945	34945, 46
XP-100	BARREL ASSEMBLY	C34950	34950, 51
	CHAMBER DRAWING-223 REM- "REM. ONLY"	L4507	
	CHAMBER DRAWING-223 REM- "INQUIRIES"	L4507	

Dwg. NO.	Rev. No.	DESIGN CHANGE
B31560		INITIAL TRANSMITTAL FOR MRP & 223 REM ADDED CALIBER.
C34945	4, 5	223 REM. ADDED.
C34950	11	223 REM. ADDED.
C34950	12	TABULATION FOR MRP ADDED.
L4507 "Rem only"	19, 20	XP100 USE ADDED
L4507 "Inquiries"	12, 15	XP100 USE ADDED
Classification of Change		

- ☒ Initial Transmittal
☐ Functional Change
☐ Safety Mechanism Revision
☐ Appearance

NOTE: Any or all of the above changes require approval of DCR by
Lab Director - New Products Research

☒ Other

Adam A. Huggick
DESIGNER SIGNATURE

Reason for Change:

REVING 4, 5, 11, 12, 19, 20, 12, 15 - INITIAL TRANSMITTAL OF ADDED 223
 Rem CALIBER TO MODEL XP-100 PISTOL.
 REV. NO. 13, 14 - UPDATE L4507 "INQUIRIES" DWG TO BE SAME AS
 "REM ONLY" DWG.

Disposition of Parts on Hand: (Check Below)

☐ Scrap ☐ Alter ☐ Use Inventory ☐ RD 6589 Attached

(P.E.C: If Part is either scrapped or altered

APPROVED:

223 REM. U.S. 6.56mm

TAGGED DATA

12 IN. TWIST

A. 14 IN. TWIST

7511966

7511642

	<u>223</u>	<u>5.56</u>	<u>223</u>	<u>5.56</u>
PLND -	1.85 ⁺ , 1.65 ⁺	2.2 ⁺ , 1.6 ⁺	1.90 ⁺ , 1.6 ⁺	2.65 ⁺ , 1.56 ⁺
45NOTS	1.50 ⁺ , 1.00 ⁺	1.25 ⁺ , 1.0 ⁺	1.05 ⁺ , 1.50 ⁺	1.70 ⁺ , 1.25 ⁺
35NOTS	1.40 ⁺ , 0.75 ⁺	1.00 ⁺ , 1.0 ⁺	0.85 ⁺ , 1.00 ⁺	0.80 ⁺ , 0.80 ⁺
ND - 40	1.55 ⁺ , 1.60 ⁺	2.22 ⁺ , 2.44 ⁺	1.80 ⁺ , 1.45 ⁺ (KHO)	2.22 ⁺ , 1.64 ⁺
45NOTS	1.40 ⁺ , 1.40 ⁺	1.20 ⁺ , 1.95 ⁺	1.55 ⁺ , 1.40 ⁺	1.85 ⁺ , 1.40 ⁺
35NOTS	0.90 ⁺ , 0.65 ⁺	0.80 ⁺ , 0.85 ⁺	0.85 ⁺ , 0.60 ⁺	1.25 ⁺ , 1.30 ⁺
INFMC-55	1.85 ⁺ , 1.20 ⁺	1.78 ⁺ , 2.06 ⁺	2.10 ⁺ , 2.15 ⁺	1.34 ⁺ , 2.44 ⁺
45NOTS	1.30 ⁺ , 1.20 ⁺	1.20 ⁺ , 1.65 ⁺	1.70 ⁺ , 1.75 ⁺	0.95 ⁺ , 1.90 ⁺
35NOTS	1.15 ⁺ , 0.85 ⁺	0.65 ⁺ , 0.95 ⁺	0.20 ⁺ , 0.85 ⁺	0.40 ⁺ , 1.35 ⁺
6 AND 10T	23.20	25.80	24.35	27.00
55NOTS	9.70	12.30	11.05	11.85
45NOTS	7.80	8.25	8.95	9.25
35NOTS	5.70	5.25	4.35	5.90
6 AND	1.29	1.43	1.35	1.50
55NOTS	1.62	2.05	1.84	1.98
45NOTS	1.30	1.38	1.49	1.54
35NOTS	0.95	0.88	0.73	0.98
55NOTS	0.24	0.31	0.27	0.53
45NOTS	0.18	0.35	0.25	0.40
35NOTS	0.28	0.14	0.29	0.38
3T	2.34	2.98	2.65	3.57
73T	1.84	2.43	2.24	2.74
911	1.30	1.60	2.12	

OCT. 10, 85 Ao

WRITER GUNS

B 75 12 428 (12), B 75 11 606 (14), B 75 12 214 (14),
B 75 08 005 (12), B 75 12 261 (14), B 75 12 192 (14)

ACCURACY

(TWIST, CHAMBER, BULLET WEIGHTS)

{ B 75 11 966 (12), B 75 11 642 (14)

{ FED 40

{ WIN ~~ESS~~

{ GALLERY 2075 (PSP & PLNP)

{ (223 Rem vs. 5.56 GOUT) - Fed 40, Win ⁵⁵ ~~ESS~~, RPLNP,

ENDURANCE (STOCK)

100 RPS. FACTORY (SAUC PLNP AMMU-GOONSTAN)

100 RPS. (EXPERIMENTAL PAINTER STOCK)

XP 100 - 223 REM. DESIGN TEST

PROGRAM. 8-02-85 A.A.H.

1. ^{DONE} OBTAIN TEN 22CFR BARREL BLANKS (MODEL SEVEN)
 - (a) FIVE - 222 REM. FOR 14 INCH TWIST
 - (b) FIVE - 223 REM. FOR 12 INCH TWIST.
2. ^{DONE} TURN BARREL CONTOUR 22 AND TRIM LENGTH TO THAT OF 7mm BR REM BARREL BLANK.
3. ^{DONE} WITH DRAW FROM WARE HOUSE TEN XP-100 PISTOLS OF 221 CALIBER.
4. ^{DONE} HAVE BARRELS (1" ^{CUSTOMER}) REMOVED FROM RECEIVERS AND DELIVER ACTIONS TO CUSTOM SHOP.
5. ^{DONE} HAVE BARREL CHANNEL OR STOCKS RE CUT TO THAT OF 7mm BR REM BARREL CHANNEL OR OBTAIN TEN STOCKS WITH 7mm BR REM BARREL CONTOUR VIA 14 USATORY WITHDRAWAL.
6. ^{DONE} HAVE CUSTOM SHOP FABRICATE XP 100 - 223 REM PISTOLS. FIVE TO BE STAMPED (12) FOR 12 INCH TWIST AND FIVE TO BE STAMPED (14) FOR 14 INCH TWIST.
7. ^{DONE} PROOF AND ACCURACY TEST ALL TEN PISTOLS WITH 223 REM. AMMO. (WITH TRACER MOTOR BARRAS (R, W, F)).

(2) ACCURACY TEST MAY BE BOTH IN
GALLERY RANGE AND HAND FIRED.
(100 YARD & 200 YARD IN GALLERY RANGE(S))?

MAKE TEST RESULTS - AND PREPARE
TRANSMITTAL - DETAILS FOR XP-100-223 REM.

SELECT ONE (12) AND ONE (14) XP100 PISTON
AND HAVE CHAMBER RE CUT (DOWN THROAT)
TO THAT OF 5.56.

RESHOOT ACCURACY OF ALTERED GUN
AND ONE CONTROL GUN.

FINAL 128 SECOND TEST RESULTS AND
COMPARE TO FIRST ACCURACY TEST.

COMMENT: THE LONG RANGE XP100
BOLT ACTION PISTOL ACCURACY IS EXPECTED
TO BE A FUNCTION OF CHAMBER PRESSURE
VARIATION(S). - A (14) INCH TWIST IS MORE
FOR GIVING THAN A (12) INCH TWIST
BARREL. THE DOWN THROATED 5.56
IS EXPECTED TO BE MORE FOR GIVING
THAN A LESSER THROATED 223 REM,
CHAMBER. IF SIGNIFICANT INDICATIONS
OR ONE GUN WILL INDICATE IF A LARGER
SAMPLE IS REQUIRED FOR VARIATION
OR ACCURACY DIFFERENCE.

NOT
TIME

IR WHEN RE CUTTING THE 223 REM CHAMBER
TO THE 5.56 CHAMBER STRAIN GAGE(S)
SHOULD BE PLACED ON GUN FOR STRAIN
GAGE PRESSURE DATA AND MUZZLE
VELOCITY IF MEAS / TEST TIME ALLOWED.

To: W.H. Coleman- J.W. Bower

From: A.A. Husick

Subject: XP-100 223Rem Report

Date: January 20, 1986

Attached are xerox copies of XP-100 223Rem. report sheets with comments. This response is to answer these comments.

1. The XP-100 223Rem. pistol transmittal was with 14 inch twist per indications of testing 12 inch twist vs. 14 inch twist accuracy data. (JWB)

2. The 223Rem. chamber vs. 5.56 Govt chamber test indicated both the 12 inch twist and the 14 inch twist pistols had a larger group size when retested with 5.56 Govt chambers.

12 inch twist: 223Rem ave 1.62

5.56Govt ave 2.05

14 inch twist: 223Rem ave 1.84

5.56Govt ave 1.98

The best shooting pistols were used for Writer's Seminar Pistols and thus I used available remaining XP-100 samples. in this case the 14 inch twist sample was larger than the 12 inch twist sample. (WHC)

3. With this report I was the best qualified to write the Design Conformation Test Report in that design people fired accuracy and endurance while test lab people fired only the 223Rem. vs. 5.56Govt chamber accuracy test. (JWB)

*If this is a design confirmation test, it should have been submitted by the test lab why did it take over 2 months to publish the report? Xc: W.H. Coleman, II
J.N. Bower
T.C. Douglas
File*
A little late if anyone on the distribution list wanted to react to it! The report raises some questions but never answers them.
June

XP-100 CALIBER 223 REM. BOLT ACTION PISTOL-

DESIGN CONFIRMATION TEST REPORT

Introduction

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design confirmation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offering will add one more caliber to the existent XP-100 product line.

Test Conclusion - Results

The XP-100 caliber 223 Rem. single shot bolt action pistol design confirmation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted September 30, 1985.

Test Data - Comments:

A. Accuracy

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. center-fire cartridge is to be considered for the XP-100 pistol as a varmint cartridge. Accuracy testing results are as follows:

1. Plant range and plant gallery accuracy test device data for 5 shot groups: average = 3.75, min = 0.35, max = 8.8 inches. This data indicates plant gallery test problems when compared to Research hand fired results. 1983 XP-100 caliber 223 Rem. test data also indicates larger group sizes when fired from the gallery device.

Part of the test was to determine twist which one did we transmit?

2. Research hand fired 100 yard range data:

a. 5 shot groups, 2 groups per gun with a 12x scope.

12 inch twist data:

avg. = 1.72, sigma = 0.55, avg. + 3 sigma = 3.37

14 inch twist data:

avg. = 1.58, sigma = 0.34, avg. + 3 sigma = 2.68

b. Best 4 shots in 5 shot group data

12 inch twist data:

avg. = 1.14, sigma = 0.47, avg. + 3 sigma = 2.55.

14 inch twist data:

Avg. = 0.98, sigma = 0.30, avg. + 3 sigma = 1.88.

c. Best 3 shots in 5 shot group data

12 inch twist data:

avg. = 0.67, sigma = 0.24, avg. + 3 sigma = 1.48

14 inch twist data:

avg. = 0.64, sigma = 0.13, avg. + 3 sigma = 1.03.

3. Based on Research hand fired XP-100 yard data the following accuracy specs. are proposed:

a. 5 shots group size to be 3.0 inches.

b. 4 shots group size to be 2.0 inches.

c. 3 shots group size to be 1.0 inches.

B. Endurance

Consisted of firing test gun B7512507, held in a soft mount fixture, a total of 1100 fired rounds.

1. No malfunctions were encountered.

2. No breakages were encountered.

3. One adjustment was required.

✓
indicates
14" twist
superior.
On page 3
we show
data that
says 12"
twist superior
Resolution?

2 Xc: W.H. Coleman, II
J.W. Bower
T.C. Douglas
File

*7. A Hugick
see pg 3*

**XP-100 CALIBER 223 REM. BOLT ACTION PISTOL—
DESIGN CONFIRMATION TEST REPORT**

Introduction

Ten Model XP-100 caliber 223 Rem. single shot bolt action pistols were fabricated for Research design confirmation test. All component gun parts in these design test pistols originated from Ilion production XP-100 parts. Only the chambers, barrel outside contours, and barrel surface finishes were not produced by Ilion production facilities. The 223 Rem. offering will add one more caliber to the existent XP-100 product line.

Test Conclusion - Results

The XP-100 caliber 223 Rem. single shot bolt action pistol design confirmation test results met accuracy, endurance, and functional criteria. The XP-100 223 Rem. parts list and model drawings were transmitted September 30, 1985.

Test Data - Comments:

A. Accuracy

Five of the test pistols were made with 12 inch twist barrels and five were made with 14 inch twist barrels. This was included in this XP-100 pistol design test due to Remington producing 223 Rem. rifles with both twist and now the 223 Rem. center-fire cartridge is to be considered for the XP-100 pistol as a varmint cartridge. Accuracy testing results are as follows:

1. Plant range and plant gallery accuracy test device data for 5 shot groups: average = 3.75, min = 0.35, max = 8.8 inches. This data indicates plant gallery test problems when compared to Research hand fired results. 1983 XP-100 caliber 223 Rem. test data also indicates larger group sizes when fired from the gallery device.

The bolt stop pivot pin fell out due to lack of stake at assembly.

C. Functional Performance

The functional performance indicated no extraction, ejection, loading or firing related malfunctions were encountered while firing endurance and accuracy testing of the ten XP-100 design confirmation test pistols.

D. Additional Items

Additional items related to the XP-100 Pistol and the 223 Rem. cartridge program are as follows:

1985 sports writer samples for review.

XP-100 Zytel stock color variations.

223 Rem. vs. 5.56mm chambers.

1. The 1985 Sports Writer acceptance of the XP-100 caliber 223 Rem. was well received, guns performed well, and guns looked good.

2. XP-100 Zytel stock color variations consisted of sending one black stock with the sport writer's gun sample. As of this date no word has been received related to interest or disinterest in a black color XP-100 Zytel stocks.

3. 223 Rem. vs. 5.56mm chambers testing consisted of shooting 100 yard accuracy with one 12 inch twist and one 14 inch twist with the 223 Rem. chamber, recut the 223 Rem. chamber throating to that of 5.56mm, and reshooting accuracy. The accuracy results are as follows:

a. 5 shot groups, 6 groups per gun with 12x scope.
12 inch twist data, 223 Rem.

ave. = 1.62, sigma = 0.24, ave + 3 sigma = 2.34

14 inch twist data, 223 Rem.

ave. = 1.84, sigma = 0.27, ave + 3 sigma = 2.65

12 inch twist data, 5.56mm

ave. = 2.05, sigma = 0.31, ave + 3 sigma = 2.98

14 inch twist data, 5.56mm

ave. = 1.98, sigma = 0.53, ave. + 3 sigma = 3.57

*Seem to have
accuracy inversion
12" better than 14"
Twist versus
Pg 2-14" better than
12"
Any explanation?*

Xc: W.H. Coleman, II
J.W. Bower
T.C. Douglas
File

M/700 BDL CALIBER 338 WIN. MAG.

DESIGN CONFIRMATION TEST REPORT

Introduction

Five Model 700 BDL Caliber 338 Win. Mag. bolt action center-fire rifles were fabricated in the Remington Custom Shop. These rifles were assembled with components common with the M/700 BDL 8mm Rem. Mag. rifles except for bore and chambers. The 338 Win. Mag. caliber is scheduled for a limited edition production run and maybe offered after as an added caliber to the Model 700 BDL product line.

Test Conclusions - Results:

The five Model 700 BDL Caliber 338 Win. Mag. bolt action center-fire rifles fabricated for this test met design accuracy and functional performance criteria. M/700 BDL caliber 338 Win. Mag. parts list and model drawings were transmitted December 20, 1985.

Test Data - Comments:

A. Accuracy:

The five rifles were shoulder fired for accuracy in the Custom Shop 100 yard range with group size data as follows: $\bar{x}$ = 2.71 inches, min group = 200 inches, and max group = 3.61 inches firing Winchester brand of test ammunition in that Remington does not produce caliber 338 Win. Mag. ammunition. Proposed accuracy specifications for the 338 Win. Mag. is to be same accuracy specification as the M/700 8mm Rem. Mag rifle.

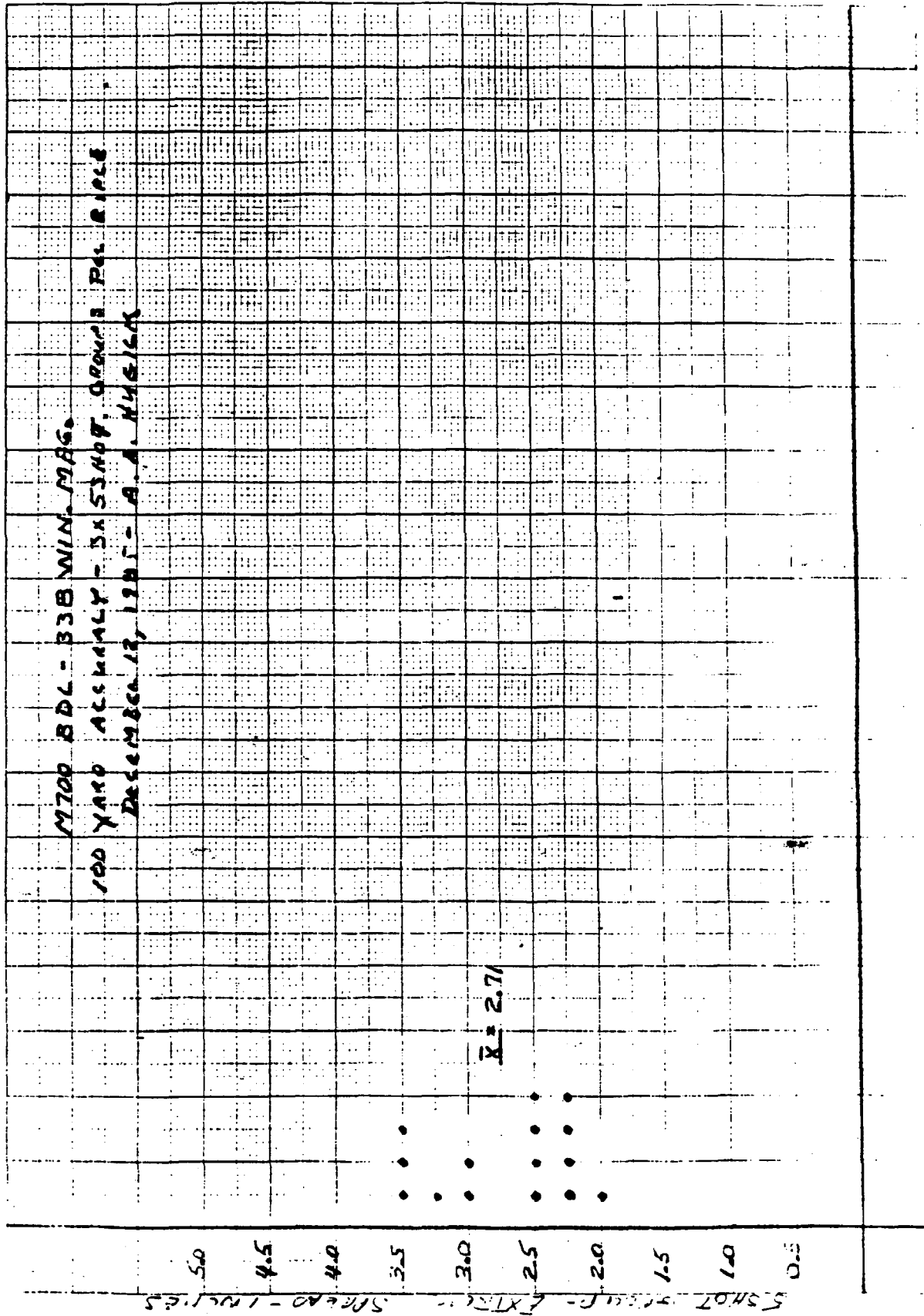
K40

B. Functional Performance:

No malfunctions or feeding, extracting, ejection or firing were encountered with the five test rifles during accuracy shooting or shoulder fired field function test. One bolt closed hard malfunction was recorded and was associated with ammo headspace being at or greater than max with rifles at min firearm headspace.

C. Min-Max sight adjustment was fired with 8mm Rem. Mag. rear and front sight assemblies as assembled on M/700 Serial Number B6688062. Min POI data was 14 1/2 inches low, max POI data was 9 1/2 inches high at 100 yards.

AAHugick:js
1/8/86



DCR

Sheet

1 of 1

DESIGN CHANGE REQUEST (DCR) ✓

OR

TRANSMITTAL OF DRAWINGS/PARTS LIST ✓

OR

PARTS LIST CHANGE NOTICE (PLCN)

Requested By	Changed By	Date
T.C. DOUGLAS	A.A. HUGGINS	12/9/85
Originating Date	Transmittal Date	
Dec. 9, 1985		

Model	PART NAME/LIST	Drawing No.	Part No.
700 BDL	BARREL	D26285	93610
700 BDL	BARREL ASSEMBLY	D33450	93609
700 BDL	BARREL ASSEMBLY COMPLETE	B31495	31515
700	BARREL & RECEIVER MARKING	C15360	93609
700 BDL	CHAMBER 338 WIN MAG	L8551	

Dwg. NO.	Rev. No.	DESIGN CHANGE
D26285	40	ADDED CALIBER 338 WIN. MAG.
D33450	22	" " " " "
B31495	7	" " " " "
C15360	75	ADDED CALIBER 338 WIN. MAG.
L8551		REM ONLY, "INQUIRIES" CHAMBER 338 WIN MAG.
		INITIAL TRANSMITTAL.

Classification of Change

- ☐ Initial Transmittal
☐ Functional Change
☐ Safety Mechanism Revision
☐ Appearance

NOTE: Any or all of the above changes require approval of DCR by
Lab Director - New Products Research

☒ Other

A.A. Huggins
DESIGNER SIGNATURE

Reason for Change:

338 WIN. MAG. CALIBER ADDED TO M700 BDL PRODUCT LINE.
LIMITED RUN AT INTRODUCTION OF CALIBER.

Disposition of Parts on Hand: (Check Below)

☐ Scrap ☐ Alter ☐ Use Inventory ☐ RD 6589 Attached

(P.E.C: If Part is either scrapped or alter.

APPROVED: _____

ENTERED ✓

Report No. 852491

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

<u>Developmental</u> ☒ <u>Design Acceptance</u> <u>Pre-Pilot</u> <u>Pilot</u> <u>Production Acceptance</u>		<u>AREA OF TESTING</u> <u>Safety Related</u> <u>Litigation</u> <u>Competitive Evaluation</u> <u>Warehouse Audit</u> ☒ <u>New Design</u> <u>Cost Reduction</u> <u>Design Change</u> <u>Stake</u> <u>Plant Assistance</u> ☒ <u>Other</u> <u>ADDED CALIBER</u>	
<u>FIREARM STATS</u> MODEL: <u>700BDC</u> CAL or GAGE: <u>338 WIN MAG</u> BARREL TYPE: <u>MAG</u> PROOFED: YES ☒ NO ☐		<u>REPORT REQ'D.</u> FORMAL ☐ TEST RESULTS ONLY ☒	DATE REQUESTED: <u>SEPT 25</u> DATE NEEDED BY: <u>1987</u> REQUESTED BY: <u>A.A. HICKIN</u> WORK ORDER NO: <u>50336-300</u>

<u>TEST TYPE</u> <u>Strength Test</u> <u>Ammunition Test</u> <u>Dry Cycle Test</u> <u>Photo/Video</u> ☒ <u>Function Test</u> <u>Environmental Test</u> <u>Measurements</u> <u>Other</u> ☒ <u>Accuracy Test</u> <u>Customer Complaint</u> <u>Endurance Test</u>			
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EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

FIVE MODEL 700 MAG BDC RIFLES CALIBER 338 WIN MAG WERE FABRICATED IN THE CUSTOMER SHOP (BORN AND UNIT) AND COMPLETED IN PRODUCTION (PROLUS ONE GROUP 12 STOCK ASSEMBLY, SIGNS, MAGNIFY, FIRING PM, EXTRACTOR). CONDUCT FUNCTION & ACCURACY TEST. PLUS PROOF — DO NOT CONDUCT FUNCTION TEST FOR THESE RIFLES WILL BE TEST FOR WRITER SEMINAR ETC. NEED FOR WRITER SEMINAR ETC. PLEASE,

GUNS REQUIRED:

B6688062, B6688083, B6688040, B6688070.

NOTE: NO firearms or parts will be tested in the Labs unless they are accompanied by a Work Request, and both are delivered to the Labs by the designer or engineer. All Work Requests are to be filled out in detail. No Exceptions.

DATE COMPLETED: _____

TEST COMPLETED BY: _____

REPORT DATE: _____

M700 BDL-338 WIN MAG

TEST AGENDA ITEMS

(ADDED CALIBER TO M700 BDL LINE)

1. HEAD SPACE
2. PROOF
3. HEAD SPACE
4. MAGAZINE CAPACITY
5. LIVE (SUPPLIED DUMMIES) LOAD & UNLOAD ON BENNET
6. ACCURACY - SAMPLE OF GUNS
 - IF RECOIL IS EXCESSIVE 35 METER GROUP EQUIVALENT.
 - IRON SIGHT MIN & MAX ADJUST.
7. FIELD FUNCTION - BOTH AMMO TYPES.
ONLY AMMO BRAND IS WINCHESTER.
IN TWO BULLET WEIGHTS.

— CUSTOM SHOP HAS PROOF AMMO, HEADSPACE GAGES, AND AMMO WHICH MAY/WILL BE NEEDED FOR THIS TEST ACTIVITY.

8. CLEAN RIFLES AFTER TEST -

X DO NOT SHOOT FUNCTION IN RAIN WEATHER.
FOR THESE WILL PROBABLY END UP AT
WRITER SEMINAR.

X TRY NOT TO SCRATCH OR MARK DURING
TESTS.

RETURN TO WRITER FOR STORAGE AND
REPORT WRITING.

ADAM S. G. G.

SEPT 3, 1960

JERRY HILL:

1. WORK ORDER EO 236-306

2. ASSEMBLE FIVE M700 = 300
WIN MAG BDC RIFLES FOR
DESIGN CONFIRMATION TEST.

3.

32524	REAR SIGHT ASSEMBLY	✓
22040	FIRING PIN ASSEMBLY	✓
33385	STOCK ASSEMBLY	✓
26345	TRIGGER ASSEMBLY	✓
26371	TRIGGER GUARD ASSEMBLY	✓
16430 16430	MAGAZINE	✓
90952	MAGAZINE FOLLOWER	✓
15677	MAGAZINE SPRING	✓
15373	FRONT SIGHT	✓
1105	<i>R. H. H. H.</i>	
11176	<i>R. H. H. H.</i>	
11177	<i>R. H. H. H.</i>	
11178	<i>R. H. H. H.</i>	

A. A. HUGILK
SEPT 3, 85
EXT. 461

SERIAL NO. B66 88062

TTL. NOB. FIRED: 40

TTL. MALFUNCTIONS; 0

Malfunctioning

[illegible]

R2536812

DATE: 9-19-85

115V 100W
115V 100W

TEST TITLE. Field Function

TTL. RES. FIRED; 40
 TTL. MALFUNCTIONS; 0
 MALFUNCTION RATE; 0

“FUNCTIONAL”

[illegible]

MIN - MAX

Serial # B6688062 SIGHT ADJUSTMENT - DATA,

CENTERFIRE PATTERNS # 1

IN CIR

1 IN 0

2 IN 0

3 IN 0

HS = 3.418

VS = 26.876

GS = 26.892

+ ————— POA

1 in circle

2 in circle

PATTERN #

NUMBER OF SHOTS	:	10	
MAXIMUM X & Y	:	3.192	-.226
MINIMUM X & Y	:	10.685	-16.191
CENTROID X & Y	:	1.457	-2.765
POA TO CENTROID RAD:	:	3.1249	
MIN RADIUS	:	9.7426	
MEAN RADIUS	:	11.9977	
MAX RADIUS	:	13.4528	
HORIZONTAL SPREAD	:	3.4180	
VERTICAL SPREAD	:	26.8760	
EXTREME SPREAD	:	26.8919	

NUMBER IN ONE INCH CIRCLE	=	0
NUMBER IN TWO INCH CIRCLE	=	0
NUMBER IN THREE INCH CIRCLE	=	0

Serial # B6688062

CENTERFIRE PATTERNS # 1

IN CIR

1 IN = 0

2 IN = 0

3 IN = 2

HS = 3.424

VS = 3.785

GS = 4.240

+ _____ POA

PATTERN #

NUMBER OF SHOTS	:	5	
MAXIMUM X & Y	:	3.166	-.258
MINIMUM X & Y	:	18.688	6.895
CENTROID X & Y	:	1.936	9.168
POA TO CENTROID RAD:	:	9.3697	
MIN RADIUS	:	1.8918	
MEAN RADIUS	:	1.7569	
MAX RADIUS	:	2.3887	
HORIZONTAL SPREAD	:	3.4240	
VERTICAL SPREAD	:	3.7850	
EXTREME SPREAD	:	4.2478	

NUMBER IN ONE	INCH CIRCLE	=	0
NUMBER IN TWO	INCH CIRCLE	=	0
NUMBER IN THREE	INCH CIRCLE	=	2

Serial # B6688062

CENTERFIRE PATTERNS # 2

IN CIR

1IN = 0

2IN = 3

3IN = 4

HS = 1.924

VS = 2.376

GS = 2.928

+ ————— POA

PATTERN #

NUMBER OF SHOTS	5	
MAXIMUM X & Y	2.088	.164
MINIMUM X & Y	-13.821	-16.197
CENTROID X & Y	.912	-14.711
POA TO CENTROID RAD	14.7388	
MIN RADIUS	.9164	
MEAN RADIUS	1.1465	
MAX RADIUS	1.8955	
HORIZONTAL SPREAD	1.9240	
VERTICAL SPREAD	2.3760	
EXTREME SPREAD	2.9287	

NUMBER IN ONE INCH CIRCLE	=	0
NUMBER IN TWO INCH CIRCLE	=	3
NUMBER IN THREE INCH CIRCLE	=	4

Xc: W.H. Coleman, II
J.W. Bower
T.C. Douglas
File

M/700 BDL CALIBER 338 WIN. MAG.

DESIGN CONFIRMATION TEST REPORT

Introduction

Five Model 700 BDL Caliber 338 Win. Mag. bolt action center-fire rifles were fabricated in the Remington Custom Shop. These rifles were assembled with components common with the M/700 BDL 8mm Rem. Mag. rifles except for bore and chambers. The 338 Win. Mag. caliber is scheduled for a limited edition production run and maybe offered after as an added caliber to the Model 700 BDL product line.

Test Conclusions - Results:

The five Model 700 BDL Caliber 338 Win. Mag. bolt action center-fire rifles fabricated for this test met design accuracy and functional performance criteria. M/700 BDL caliber 338 Win. Mag. parts list and model drawings were transmitted December 20, 1985.

Test Data - Comments:

A. Accuracy:

The five rifles were shoulder fired for accuracy in the Custom Shop 100 yard range with group size data as follows: $\bar{x}$ = 2.71 inches, min group = 200 inches, and max group = 3.61 inches firing Winchester brand of test ammunition in that Remington does not produce caliber 338 Win. Mag. ammunition. Proposed accuracy specifications for the 338 Win. Mag. is to be same accuracy specification as the M/700 8mm Rem. Mag rifle.

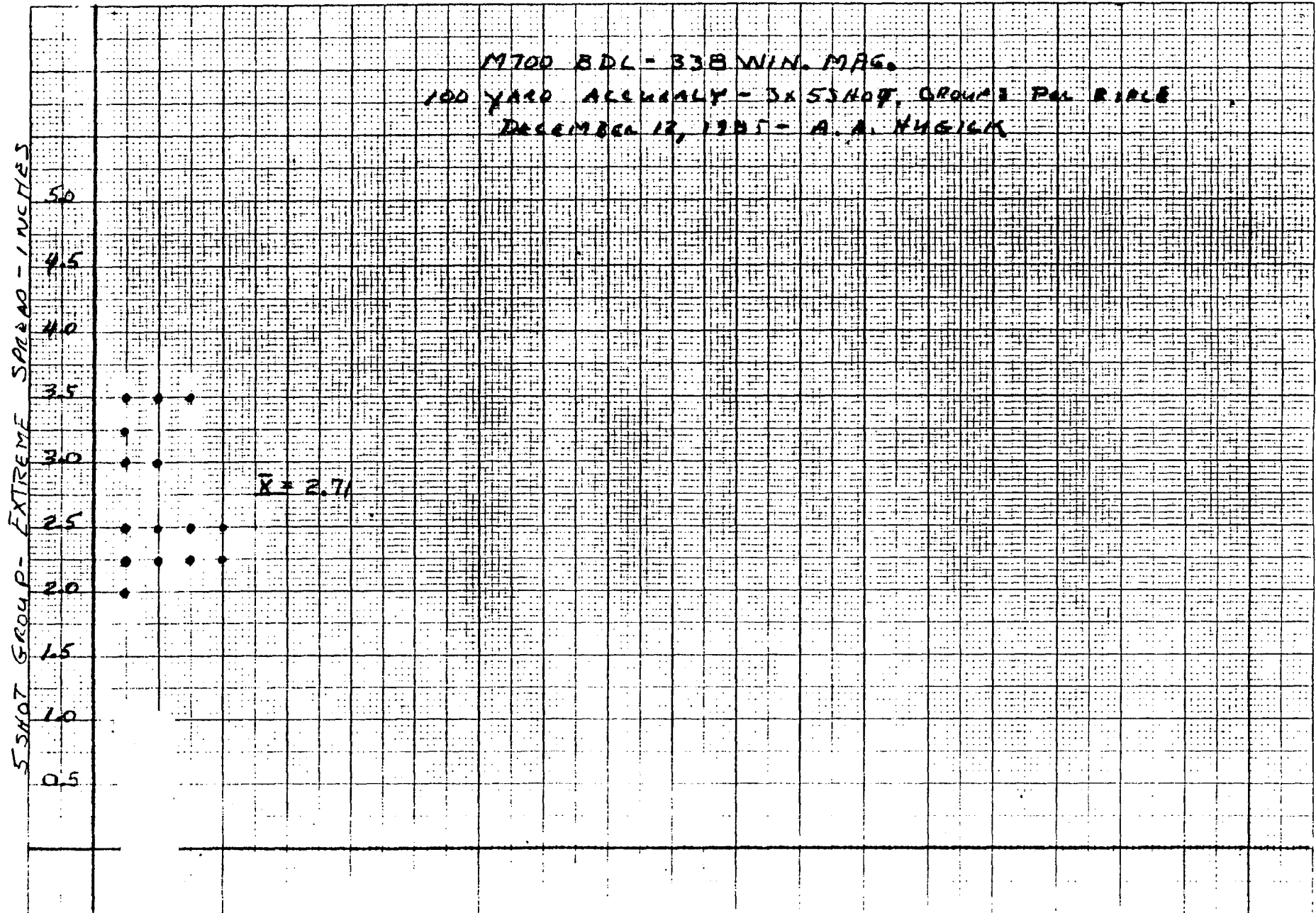
B. Functional Performance:

No malfunctions or feeding, extracting, ejection or firing were encountered with the five test rifles during accuracy shooting or shoulder fired field function test. One bolt closed hard malfunction was recorded and was associated with ammo headspace being at or greater than max with rifles at min firearm headspace.

C. Min-Max sight adjustment was fired with 8mm Rem. Mag. rear and front sight assemblies as assembled on M/700 Serial Number B6688062. Min POI data was 14 1/2 inches low, max POI data was 9 1/2 inches high at 100 yards.

AAHugick:js
1/8/86

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON



R2536821

DESIGN CHANGE REQUEST (DCR) ✓

OR

TRANSMITTAL OF DRAWINGS/PARTS LIST ✓

OR

PARTS LIST CHANGE NOTICE (PLCN)

Requested By	Changed By	Date
T.C. DOUGLAS	A.A. HUGICK	12/9/85
Originating Date	Transmittal Date	
DEC. 9, 1985		

Model	PART NAME/LIST	Drawing No.	Part No.
700 BDL	BARREL	D26285	93610
700 BDL	BARREL ASSEMBLY	D33450	93609
700 BDL	BARREL ASSEMBLY COMPLETE	B31495	31515
700	BARREL & RECEIVER MARKING	C15360	93609
700 BDL	CHAMBER 338 WIN MAG	LB551	

Dwg. NO.	Rev. No.	DESIGN CHANGE
D26285	40	ADDED CALIBER 338 WIN. MAG.
D33450	22	" " " " "
B31495	7	" " " " "
C15360	75	ADDED CALIBER 338 WIN. MAG.
LB551		"REMOVAL" "INQUIRIES" CHAMBER 338 WIN MAG.
		INITIAL TRANSMITTAL.

Classification of Change

- ☐ Initial Transmittal
☐ Functional Change
☐ Safety Mechanism Revision
☐ Appearance

NOTE: Any or all of the above changes require approval of DCR by
Lab Director - New Products Research

☒ Other

A.A. Hugick
DESIGNER SIGNATURE

Reason for Change:

338 WIN. MAG. CALIBER ADDED TO M700 BDL PRODUCT LINE.
LIMITED RUN AT INTRODUCTION OF CALIBER.

Disposition of Parts on Hand: (Check Below)

☐ Scrap ☐ Alter ☐ Use Inventory ☐ RD 6589 Attached

(P.E.&C: If Part is either scrapped or altered)

APPROVED: _____

[illegible]

ENTERED ✓

Report No. 852491

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

☐ Developmental ☒ Design Acceptance ☐ Pre-Pilot ☐ Pilot ☐ Production Acceptance		AREA OF TESTING ☐ Safety Related ☐ Litigation ☐ Competitive Evaluation ☐ Warehouse Audit ☒ New Design ☐ Cost Reduction ☐ Design Change State _____ ☐ Plant Assistance ☒ Other <u>ADDED CALIBER</u>	
FIREARM STATS MODEL: <u>700BDC</u> CAL or GAGE: <u>338 WIN MAG</u> BARREL TYPE: <u>MAG</u> PROOFED: YES ☒ NO ☐		REPORT REQ'D. FORMAL ☐ TEST RESULTS ONLY ☒	DATE REQUESTED: <u>Sept 6 '75</u> DATE NEEDED BY: <u>1987</u> REQUESTED BY: <u>A.A. HUGLEY</u> WORK ORDER NO: <u>E0236-306</u>

TEST TYPE ☐ Strength Test ☐ Ammunition Test ☐ Dry Cycle Test ☐ Photo/Video ☒ Function Test ☐ Environmental Test ☐ Measurements ☐ Other _____ ☒ Accuracy Test ☐ Customer Complaint ☐ Endurance Test			
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EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

FIVE MODEL 700 MAG BDC RIFLES CALIBER 338 WIN MAG WERE FABRICATED IN THE CUSTOMER SHOP (BORER ASSC UNIT) AND COMPLETED IN PRODUCTION (PROCESS AND GAGE). IE STOCK ASSEMBLY, SIGHTS, MAGAZINE, FIRING PM, EXTRACTOR). CONDUCT FUNCTION & ACCURACY TEST PLUS PROOF — DO NOT CONDUCT ENDURANCE TEST FOR THESE RIFLES WILL BE NEED FOR WRITER SEMINAR ETC. PLEASE,

GUNS REQUIRED:

B6688062, B6688083, B6688040, B6688070,
B668806

NOTE: NO firearms or parts will be tested in the Labs unless they are accompanied by a Work Request, and both are delivered to the Labs by the designer or engineer. All Work Requests are to be filled out in detail. No Exceptions.

DATE COMPLETED: _____
 TEST COMPLETED BY: _____
 REPORT DATE: _____

M700 BDL-338 WIN MAG

TEST AGENDA ITEMS

(ADDED CALIBER TO M700 BDL LINE)

1. HEAD SPACE
 2. PROOF
 3. HEAD SPACE
 4. MAGAZINE CAPACITY
 5. 'LIVE (SUPPLIED DUMMIES)' LOAD & UNLOAD ON BENCH.
 6. ACCURACY - SAMPLE OR GUNS
 - IF RECOIL IS EXCESSIVE 3 SHOT GROUP EQUIVALENT.
 - IRON SIGHT MIN & MAX ADJUST.
 7. FIELD FUNCTION - BOTH AMMO TYPES.
 - ONLY AMMO BRAND IS WINCHESTER.
 - IN TWO BULLET WEIGHTS.
- CUSTOM SHOP HAS PROOF AMMO, HEADSPACE GAGES, AND AMMO WHICH MAY/WILL BE NEEDED FOR THIS TEST ACTIVITY.
8. X CLEAN RIFLES AFTER TEST -
- X DO NOT SHOOT FUNCTION IN RAIN WEATHER FOR THESE WILL PROBABLY END UP AS WRITER SQUIB.
- X TRY NOT TO SCRATCH OR MAR DURING TEST.
9. RETURN TO WRITER FOR STORAGE AND REPORT WRITING.

LAN COTR

SEPT 3, 1963

JERRY HILL:

1. WORK ORDER EO 236-306
2. ASSEMBLE FIVE M700-333
WIN MAG BDL RIFLES FOR
DESIGN CONFORMATION TEST.

3.

32524	REAR SIGHT ASSEMBLY	✓
22040	FIRING PIN ASSEMBLY	✓
33385	STOCK ASSEMBLY	✓
26345	TRIGGER ASSEMBLY	✓
26371	TRIGGER GUARD ASSEMBLY	✓
16430 16430	MAGAZINE	✓
90952	MAGAZINE FOLLOWER	✓
15677	MAGAZINE SPRING	✓
15373	FRONT SIGHT	✓
15635	FR. SIGHT RAMP	
15706	EJECTOR	A. A. HUGICK SEPT 3, 85 EXT. 461
17017	EJECTOR	
17019	EJECTOR SPRING	

DATE: 9-19-85

MODEL: 700

Gauge: 338

SERIAL NO. B6688062

REVISED
ROUNDS

TEST TITLE: Field Function

TTL. RDS. FIRED: 40

TTL. MALFUNCTIONS: 0

MALFUNCTION RATE: 0

"MALFUNCTIONS"

SHOOTER		NO. OF ROUNDS FIRED		FIRING		TRAP/FEED SHEET		DON'T FEED		DON'T HON BACK		DON'T LOCK OPEN		FEED FROM MAG.		1st 2nd LAUCH		SHELL STOPS M.G.		POWER OVERRIDE		DON'T LOCK UP		BITE LOW BITE BITE		SHELL JUMPS M.G. FOLLOWER BIKES LOADING BOLT OVERLAP ACTION HANG UP DON'T EXHAUST		RETRACT ADJUSTERS RETRACTORS		1st 5nd: chosed hand																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
200gr. Win RE 20 OK		225 Win PL 20 OK																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											

REVIEWS

TTL. RDS. FIRED: 40
TTL. MALFUNCTIONS: 0
MALFUNCTION RATE: 0

TEST TITLE, Field Functions

"BIOFUNCTIONAL"

[illegible]

DATE: 9-19-85

TTL. NOS. FIRED: 40

YTL. MALFUNCTIONS; 0

EXPIRATION DATE: 8

**NEW JONES
BOOKS**

TEST TITL8.

Field Function

MULTIPLICATION

[illegible]

MIN - MAX

Serial # B6688062 SIGHT ADJUSTMENT - DATA,

CENTERFIRE PATTERNS # 1

IN CIR

1 in = 0

2 in = 0

3 in = 0

HS = 3.418

VS = 26.876

GS = 26.892

+ _____ POA

1 in circle

2 in c

PATTERN #

1

NUMBER OF SHOTS	1	10	
MAXIMUM X & Y	1	3.192	-.226
MINIMUM X & Y	1	10.685	-16.191
CENTROID X & Y	1	1.457	-2.765
POA TO CENTROID RAD:		3.1249	
MIN RADIUS	1	9.7426	
MEAN RADIUS	1	11.9977	
MAX RADIUS	1	13.4520	
HORIZONTAL SPREAD	1	3.4180	
VERTICAL SPREAD	1	26.8760	
EXTREME SPREAD	1	26.8919	

NUMBER IN ONE	INCH CIRCLE	=	0
NUMBER IN TWO	INCH CIRCLE	=	0
NUMBER IN THREE	INCH CIRCLE	=	0

Serial # B6688062

CENTERFIRE PATTERNS # 1

* IN CIR

1 IN = 0

2 IN = 0

3 IN = 2

HS = 3.424

VS = 3.785

GS = 4.248

+ ————— POA

PATTERN #	1	1	
NUMBER OF SHOTS	:	5	
MAXIMUM X & Y	:	3.166	-.258
MINIMUM X & Y	:	10.680	6.895
CENTROID X & Y	:	1.936	9.168
POA TO CENTROID RAD.	:	9.3697	
MIN RADIUS	:	1.0918	
MEAN RADIUS	:	1.7569	
MAX RADIUS	:	2.3807	
HORIZONTAL SPREAD	:	3.4240	
VERTICAL SPREAD	:	3.7850	
EXTREME SPREAD	:	4.2478	
NUMBER IN ONE INCH CIRCLE	=		0
NUMBER IN TWO INCH CIRCLE	=		0
NUMBER IN THREE INCH CIRCLE	=		2

Serial # B6688062

CENTERFIRE PATTERNS # 2

IN CIR

1 IN = 0

2 IN = 3

3 IN = 4

HS = 1.924

VS = 2.376

GS = 2.929

+ _____ POA

PATTERN #

NUMBER OF SHOTS	:	5	
MAXIMUM X & Y	:	2.089	.164
MINIMUM X & Y	:	-13.821	-16.197
CENTROID X & Y	:	.912	-14.711
<u>POA TO CENTROID RAD:</u>	:	14.7388	
MIN RADIUS	:	.9164	
MEAN RADIUS	:	1.1465	
MAX RADIUS	:	1.8955	
HORIZONTAL SPREAD	:	1.9240	
VERTICAL SPREAD	:	2.3760	
EXTREME SPREAD	:	2.9287	

NUMBER IN ONE	INCH CIRCLE	=	0
NUMBER IN TWO	INCH CIRCLE	=	3
NUMBER IN THREE	INCH CIRCLE	=	4

10/7/86

● DESIGN TEST M 700 BDC 338 Wm MAG,

WITH SIGHTS (5.709 POUNDS)

● 700 CLASSIC MAG CONTOUR (WITH SWIVEL EYELETS)

SAP WOOD STOCK ~ 1.960 POUNDS

HEART WOOD STOCK ~ 2.268 POUNDS

SAP STOCK @

7.669 lbs,

HEART STOCK @

7.977

$$\begin{array}{r|l} 1.960 & 2.268 \\ \hline 5.709 & 5.709 \end{array}$$

$$\frac{7.669 + 7.977}{2} = \frac{15.646}{2}$$

7.823 LBS

PICK ONE

= 7. LBS 13 OZ. NORMAL

= 7. $\frac{3}{4}$ LBS NORMAL

= 8.0 LBS NORMAL

PICK ONE

● CAPACITY - (INCLUDING ONE CHAMBER) = 4 ROUNDS
A B C

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington.



PETERS

Xc: T.C. Douglas

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

Ilion, New York
April 23, 1986

TO: W.H. COLEMAN, II

FROM: J.W. BOWER

STAFF NOTES

Model 700 - 338 Win. Mag

For the past several years Remington has offered a limited run of a selected caliber in the Model 700 Classic. 1986's offering will be the 338 Win. Mag. In a departure from previous offerings, the 338 Win. Mag. will become a part of the regular Model 700 product line, beginning in 1987, as a Model 700 BDL.

The 338 Win. Mag. cartridge was originally introduced in 1958. It was designed to cover the heaviest of North American big game, from elk on up through moose and grizzly bear. It has also been popular in Africa on the larger varieties of plains animals.

Estimated net earnings in 1987 are \$170M on incremental sales of 4,000 BDL rifles. Net return on investment is estimated at 22%. Research has successfully completed prototype testing, and transmitted the design to Production on April 1.

JWB:js

XC: H. K. Boyle
K. W. Soucy
G. J. Hill
Estimate No. 4702

0-00-0
REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington



PETERS



"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

February 20, 1986

D. J. Anderson

MODEL 700 CLASSIC - 338 WINCHESTER MAGNUM FOR 1987

Marketing has requested that the Model 700 Classic be produced in the 338 Winchester Magnum caliber on a one-time basis in 1987. It is estimated that 4,000 of these rifles can be sold in 1987, resulting in estimated net earnings of \$ 170M and a 22% net return on investment.

Estimated expenditures of \$ 40,000 (\$ 4,000 construction and \$ 36,000 in operations charges) will be required to provide the tooling required to produce these rifles because the 338 Magnum represents a new bore diameter. However, unlike the calibers previously offered in the Classic grade on a one-time basis, it is anticipated that the 338 Magnum will be added to the Model 700 BDL line in the future.

Estimated project economics and unit prices, costs, and pretax earnings are attached.

RW Farrington Jr.

Industrial Engineering Section
R. W. Farrington, Jr., Supervisor

TRAndrews/jnp

MODEL 700 CLASSIC - 338 WINCHESTER MAGNUM
ESTIMATED EARNINGS AND NET RETURN ON INVESTMENT
FIRST YEAR OF OPERATION (1987)
DUPONT ECONOMIC EVALUATION METHODS
(DOLLARS AND QUANTITIES IN THOUSANDS)

	<u>RESULTS FROM THIS PROJECT</u>
 <u>SALES QUANTITIES</u>	
SHOTGUNS	0
CENTER FIRE RIFLES	4
RIMFIRE RIFLES	0
TOTAL FIREARMS	4
 <u>NET SALES</u>	 \$ 1,204
MANUFACTURING COST	\$ 762
DISTRIBUTION EXPENSE	24
SELLING EXPENSE	40
RESEARCH EXPENSE	10
ADMINISTRATION EXPENSE	20
	20
TOTAL COST	\$ 856
 <u>PRETAX EARNINGS</u>	 \$ 348
PERCENT OF NET SALES	28.89%
 <u>NET EARNINGS</u>	 \$ 170
 <u>INVESTMENT</u>	
PROJECT EXPENDITURES	\$ 4
EXISTING FACILITIES	0
ALLOCATED FACILITIES: MANUFACTURING	0
: SERVICE AND GENERAL	18
PERMANENT INVESTMENT	\$ 22
WORKING CAPITAL	\$ 762
TOTAL INVESTMENT	\$ 784
 <u>NET RETURN ON INVESTMENT</u>	 21.71%

20-FEB-1986

TRAndrews/jnp

MODEL 700 CLASSIC - 338 WINCHESTER MAGNUM
ESTIMATED UNIT PRICES, COSTS, AND PRETAX EARNINGS
FIRST YEAR OF OPERATION (1987)

MODEL 700 CLASSIC
338 WINCHESTER MAGNUM

SALES QUANTITIES

SHOTGUNS

CENTER FIRE RIFLES

RIMFIRE RIFLES

4,000

TOTAL FIREARMS

4,000

DISTRIBUTOR PRICE

\$ 354.68

NET SELLING PRICE

\$ 301.00

MANUFACTURING COST

\$ 213.38

DISTRIBUTION EXPENSE

5.90

SELLING EXPENSE

30.64

RESEARCH EXPENSE

14.81

ADMINISTRATION EXPENSE

6.41

TOTAL COST

\$ 271.14

PRETAX EARNINGS

\$ 29.86

PERCENT OF NET SELLING PRICE

9.92%

20-FEB-1986

TRAndrews/jnp

DATE 3/22/85I. Description of New Products (Include Impact on Other Product/Programs)

Model 700 BDL - .338 Win. Mag. caliber
 Caliber addition to M/700 BDL magnum line.
 Long action
 24" magnum bbl.

Terry Douglas
 ↑

To Cam
5/21/85
To Cam again
7/25/85
Bruce
Are these still
Selling prices correct?

I. Development Responsibility (Check One) ☒ ResearchProduction ☐I. Development SchedulePrototypes Available _____ 3 Mos. Inventory Established 9/9Trial & Pilot Complete 7 MO. AFTER Announce to Trade _____PROJECT APPROVALV. Estimates

	1	2	3	4	5
NET SELLING PRICE	\$330.30		330.30	360.69	
• Forecast Sales Volume (M Units)					
Total	5.0M		5.3M		
Incremental	2.5M		2.6M		
• Pretax Earnings (\$M)					
Full Book					
Incremental	236M		132M 267M		
• Program Investment (\$M)					
(Incremental Costs to Implement)					
Research Expense	\$32M				
Production Expense	40M				
Permanent Investment	10M				
Increase in Working Capital	554M				
• Net Return on Program Investment					
(Years 1 & 3 only)	18.9%				
• Payback (# of Years)	3.5 3.8				
• Manpower (Man Years of Effort)					
Mktg.	0				
Prod.	3				
Res.	1				
• Probability of Success (Check One)					
☒ High					
☐ Medium					
☐ Low					

Preparers

Marketing _____

Production *D.J. Anderson*Research *Terry Douglas*

Business Services _____

MAY 2, 1985

TIM MCCORMACK:

- WORK ORDER E0236-306
 - REQUEST FABRICATION OF SIX M700 BDL RIFLES
CALIBER 338 WIN MAG.
 - CUSTOM SHOP BUTTON RIFLE BARRELS
 - COMPLETE BARRELED ACTIONS
 - ROLL MARK BARRELS (CUT-HANDGRAVEN CALIBER)
 - HAVE PRODUCTION (P&G) COMPLETE ASSEMBLY
OR STOCK, SIGHTS, ETC
 - HAVE PLANT GALLERY PROOF, FUNCTION,
+ ACCURACY TEST GUNS (USE 8mm Rem
MAG ACCURACY SPECIFICATION).
 - BARREL CONTOUR (MAG CONTOUR)
- BARRELS ~ 24 inch; ~ 10" TWIST ~ MAGNUM STOCKS

REQUEST DELIVERY PRIOR TO SEPT. 1, 1985 (JULY 1, 1985)

A. A. H. Glick → T. C. Douglas → J. W. Bower → W. H. McCormack
461 305 413 —

CUSTOM SHOP DOES HAVE AMMO AND PROOF
AS OF 5/2/85.

NEW PRODUCT DEVELOPMENT REQUEST

DATE 3/22/85I. Description of New Products (Include Impact on Other Product/Programs)

Model 700 BDL - .338 Win. Mag. caliber
 Caliber addition to M/700 BDL magnum line.
 Long action
 24" magnum bbl.

Copy: Bill Coleman
Terry Douglas

Bruce
 Are these not
 selling prices correct?

II. Development Responsibility (Check One) ☒ ResearchProduction DonIII. Development Schedule

Prototypes Available _____ 3 Mos. Inventory Established _____

Trial & Pilot Complete 7 MO. AFTER Announce to Trade _____

PROJECT APPROVAL

IV. Estimates

NET SELLING PRICE

• Forecast Sales Volume (M Units)

Total

Incremental

87

Years

89

1

2

3

4

5

\$ 330.30

\$ 328.05

5.0M

2.5M

5.3M

2.6M

• Pretax Earnings (\$M)

Full Book

Incremental

PROJECT BASIS

236M

132M

• Program Investment (\$M)
 (Incremental Costs to Implement)

Research Expense

Production Expense

Permanent Investment

Increase in Working Capital

\$32M

40M

10M

554M

556M

• Net Return on Program Investment
 (Years 1 & 3 only)

18.9%

10.6%

• Payback (# of Years) 3.5• Manpower (Man Years of Effort) Mktg. 0 Prod. 3 Res. .1• Probability of Success (Check One) ☒ High ☐ Medium ☐ LowV. Preparers

Marketing _____

Research Terry C. DouglasProduction D. J. Anderson

Business Services _____

NEW PRODUCT DEVELOPMENT REQUEST

DATE 3/22/85

I. Description of New Products (Include Impact on Other Product/Programs)

Model 700 BDL - .338 Win. Mag. caliber
Caliber addition to M/700 BDL magnum line.
Long action
24" magnum bbl.

II. Development Responsibility (Check One) ☒ Research ☐ Production

III. Development Schedule

Prototypes Available _____ 3 Mos. Inventory Established _____

Trial & Pilot Complete _____ Announce to Trade _____

IV. Estimates

Years
1 2 3 4 5

• Forecast Sales Volume (M Units)

Total
Incremental

• Pretax Earnings (\$M)

Full Book
Incremental

• Program Investment (\$M)
(Incremental Costs to Implement)

Research Expense \$32M
Production Expense
Permanent Investment
Increase in Working Capital

• Net Return on Program Investment
(Years 1 & 3 only)

• Payback (# of Years) _____

• Manpower (Man Years of Effort) Mktg. _____ Prod. _____ Res. .1

• Probability of Success (Check One) ☒ High ☐ Medium ☐ Low

V. Preparers

Marketing _____

Production _____

Research Larry C. Douglas

Business Services _____

CALIBER ADDITION
24" MAGNUM - LONG ACTION

MODEL 700 EDL .338 WIN MAG

3/22/8

KIND PROTOTYPES 6 @ \$1000 = \$6000

Y 4 CONTROL GUNS 4 @ \$400 = \$1600

EST

ACCURACY 5 GUNS X 200 RDS = 1000 RDS @ \$1 = \$1000

BLOW-UP STRENGTH (1 GUN)

FUNCTION

ENDURANCE - 2 GUNS X 2500 = 5000 RDS @ \$1 = \$5000

1 MAN X 3 WKS X 40 HRS X \$24/HR = \$3200

ENGINEERING + DESIGN TIME

1 MAN X 5 WKS X 40 HRS X \$47/HR = \$9400

SUBTOTAL \$26200

CONTINGENCY @ 25% 6550

\$32,750

\$33,000