

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

	S/N	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	4.17	1.85	2.05	2.10
	<u>AVG</u>	<u>3.29</u>	<u>1.76</u>	<u>3.75</u>
	140	TARGET ROLL READ WITH SCALE 10/3/85 AA HUGGINS		

111.7 39.95 127.35

NOTE:

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

WESTERN ELECTRIC CO. MINNEAPOLIS, MINN.

40 1353

14 INCH TWIST

12 INCH TWIST

XP100 223 REM PISTOLS

RESEARCH FIRING (TCB) - PLHP AMMO - 5000

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

PROPOSED SPACES

3.0

2.5

2.0

1.5

1.0

.5

INCHES - GROUP SIZE
5 SHOT
CENTER - 70 - CENTER

$\bar{X} = 1.72$

$\sigma = 0.55$

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

$\bar{X} = 1.58$

$\sigma = 0.34$

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

KEENE & BURGESS CO. 100 N. 1ST ST. ST. LOUIS, MO.

48 1353

10/9/85

121mcH Twist

XP-100 223 Rem Pistols

RESEARCH FINDING(TCO) PLHP A mm - scope

REG-43MERS IN 3MOT 60000 DATA.

21102 Research 100 to Range

22

20

1.7

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3

100

3

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8657 4 5 NO 15

51275-07029

57474/

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11
b

887-11-732

4

12 inch TWIST

XP100 223 REM PISTOLS

RESEARCH FIRING (TCD) - PLMP Ammo - SCOR

BEST 3 SHOTS IN 5 SHOT GROUP DATA.

1979/85 TILION RESEARCH BOYD RANDOLPH

2.4

2.2

2.0

1.8

1.6

1.4

1.2

1.0

.8

.6

.4

.2

CENTER - 10 - 10

INCHES - GROUP 5/8 -

BEST 3 SHOTS

0 14

13 20

16

1

2 15 17

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

$$S = .24$$

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

14 inch TWIST

12

4

6 17

3 9 10 18

5 11

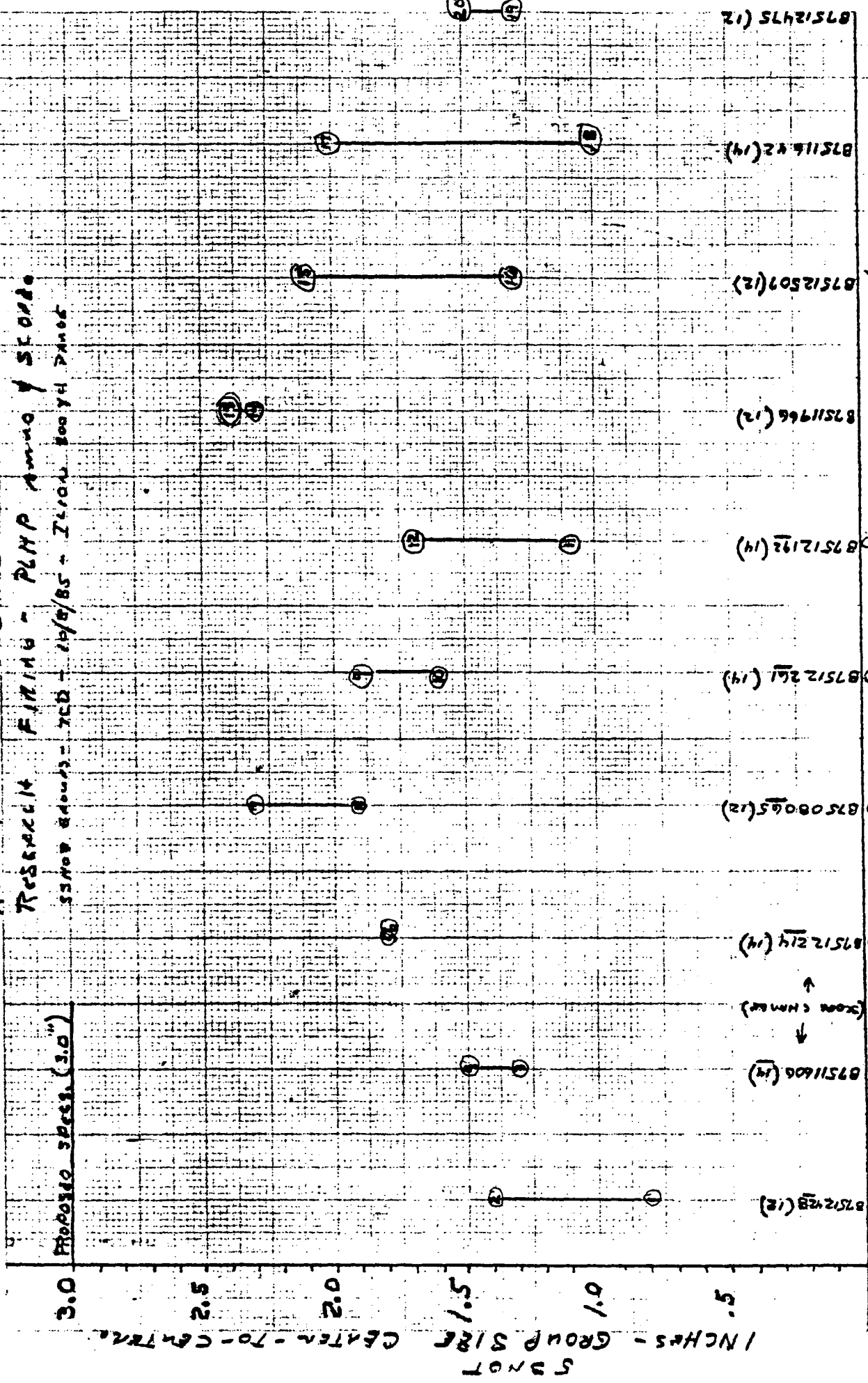
$$\bar{X} = .64$$

$$S = .13$$

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

inches A

XP-100 223 REM. PISTOLS
RESERVE FIRING - PLHP ammo & STANO
STANO ammo - 700 - 10/0/85 - Iron 800 YH DAND



REMARKS TARGETS DATA

GUN (14766T) 53 NOTES		Bear 43 NOTES		Bear 23 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	1.468	.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
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		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
ROUND
21

DATE: 10/22/85

MODEL: XP100

DATE: 2 2 3

SERIAL NO. B7512507

TEST TITLE: 223 XP/00 ENDURANCE

TTL. NOS. FINED:

TTL MALFUNCTIONS

HALF-FAILURE RATE

"HALF FUNCTIONS"

[illegible]
$$578 = 600 - 22$$

PREVIOUS
ROUND
600

DATE: 10/24/85 MODEL: XP100 ; DRIVE: 223 Rem
TEST TITLE: ENDURANCE - (JACK)

SERIAL NO. B75/2507

TTL. NOS. FIRED:
TTL. MALFUNCTIONS:
MALFUNCTION RATE:

BAKBERK - PRESALE R 01/25/43

"MALFUNCTIONS"

[illegible]

223 REMS US 6.56mm

TAGGED DATA.

12 IN. 7 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 ⁺ , 1.65 ⁺	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 ⁺
NO - 40	1.55 ⁺ , 1.60 ⁺	2.22 ⁺ , 2.44 ⁺	1.80 ⁺ , 1.45 ⁺ (K10)	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 ⁺ , 2.10 ⁺	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 GRAND 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 GRAND	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
0.911		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)

{ FED 40
 WIN ~~ESS~~
 GALLERY 2075 (PSP & PLHP)

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

ENDURANCE (STOCK)

100 RPS, FACTORY (SAVE PLHP AMMO - GOOD STUN.)

100 RPS. (EXPERIMENTAL PAINTER STOCK)

XP 100 - 223 REM DESIGN TEST

PROGRAM 8-02-85 A.M.

1. ^{DONE} OBTAIN TEN 22CFR BARREL BLANKS (MODEL 800B)
 - (a) FIVE - 222 REM FOR 14 INCH TWIST
 - (b) FIVE - 223 REM FOR 12 INCH TWIST.
2. ^{DONE} TURN BARREL CONTOUR 22 AND GET TRIM 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 custom shop) 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 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} ^(PARTI) PROOF AND ACCURACY TEST ALL TEN PISTOLS WITH 223 REM AMMO. (WITH TRACER AMMO BLANKS (R, W, F)).

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

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

DO NOT
IN HAND

MAKE TEST RESULTS - AND PROPER
TRANSMITTED DETAILS FOR XP-100-223 REM.

DO NOT
IN HAND

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

DO NOT
IN HAND

RESHOOT ACCURACY OF ALTERED GUN
AND ONE CONTROL GUN.

DO NOT
IN HAND

FINALIZE SECOND TEST RESULTS AND
COMPARE TO FIRST ACCURACY TEST.

DO NOT
IN HAND
223 REM
accuracy
5.56

✓ 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 DEEPER 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

✓ 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.

BARBER - PRESALE R 0135750
REMINGTON ARMS COMPANY, INC.

xc: Firearms Business Team

INTER-DEPARTMENTAL CORRESPONDENCE

Remington
INTER-OFFICE

PETERS
INTER-OFFICE

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

Ilion, 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 MIN as soon as possible.

ADAM

RD 6606

cc: J. White

TO: D. CHRISTIE

ILION RESEARCH DIVISION
FIREARMS WITHDRAWAL ~~XXXXXXXXXXXX~~

DATE 3/5/85

LETTER NO. 2186

QUANTITY 10

MODEL XP-100

CAL/GA. 221 REM WORK ORDER E0237

SERIAL NOS.

SMAC # 5470

B7512261

B751-214

B7512475

B7512192

B7511606

B751-428

B7511966

B751-307

B7511642

B7508005

REMARKS:

Approval

AMgick:js

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

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see pg 3*

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

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AAHUGICK:js
1/7/86

SPECIAL TEST REPORT

GALLERY DATA

MODEL XP100

SHOOTER R. C. ...

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.
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

	SHOTS	VENT	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 ¹⁷⁶²⁰²	1.85	2.05	2.12
	<u>AVER</u>	<u>3.29</u>	<u>1.76</u>	<u>3.75</u>

(140)

TARGET ROLL ROUN

WITH "SCALE 10/3/85

A.A. HUGGINS

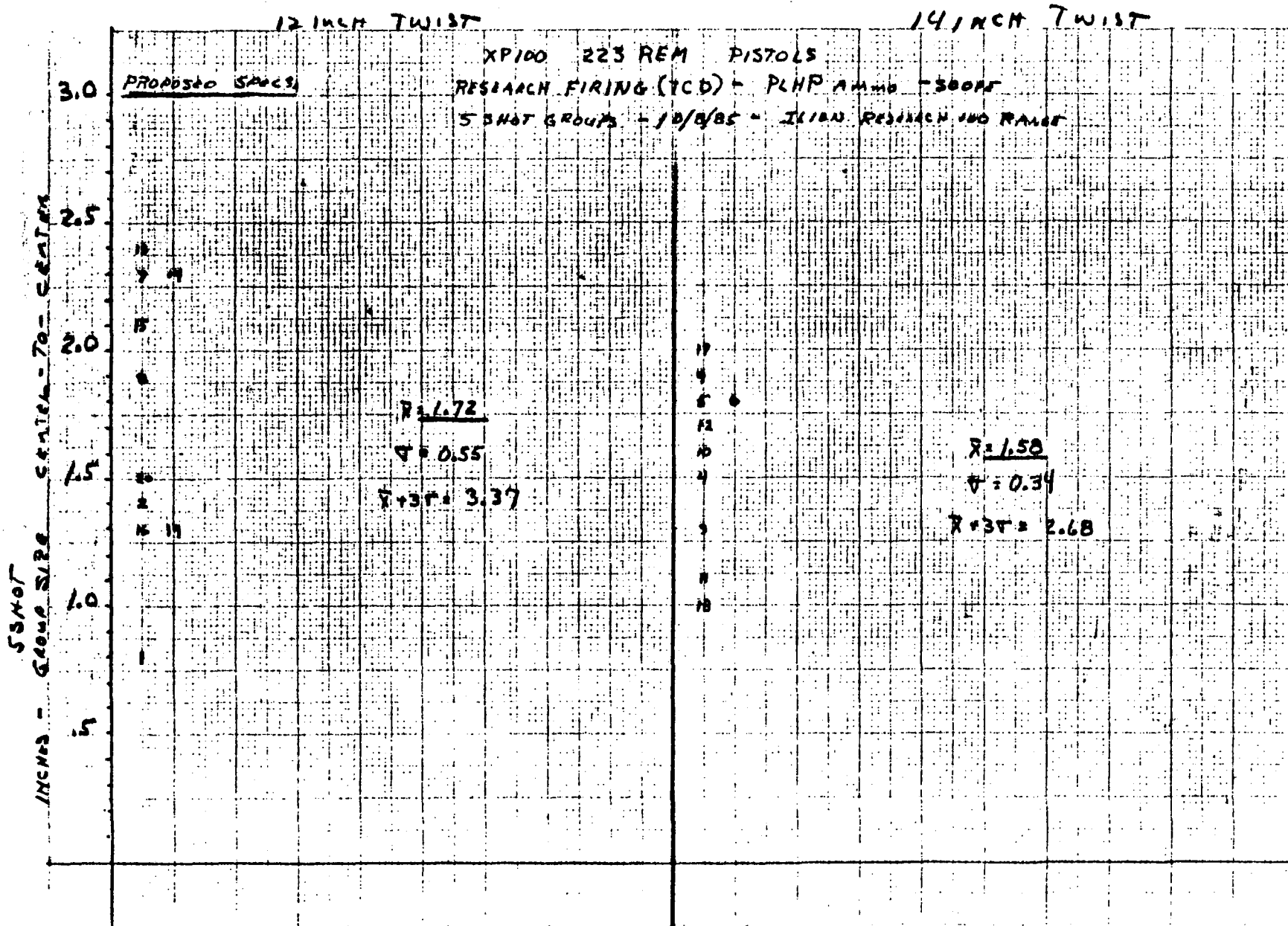
11.7

57.95

127.36

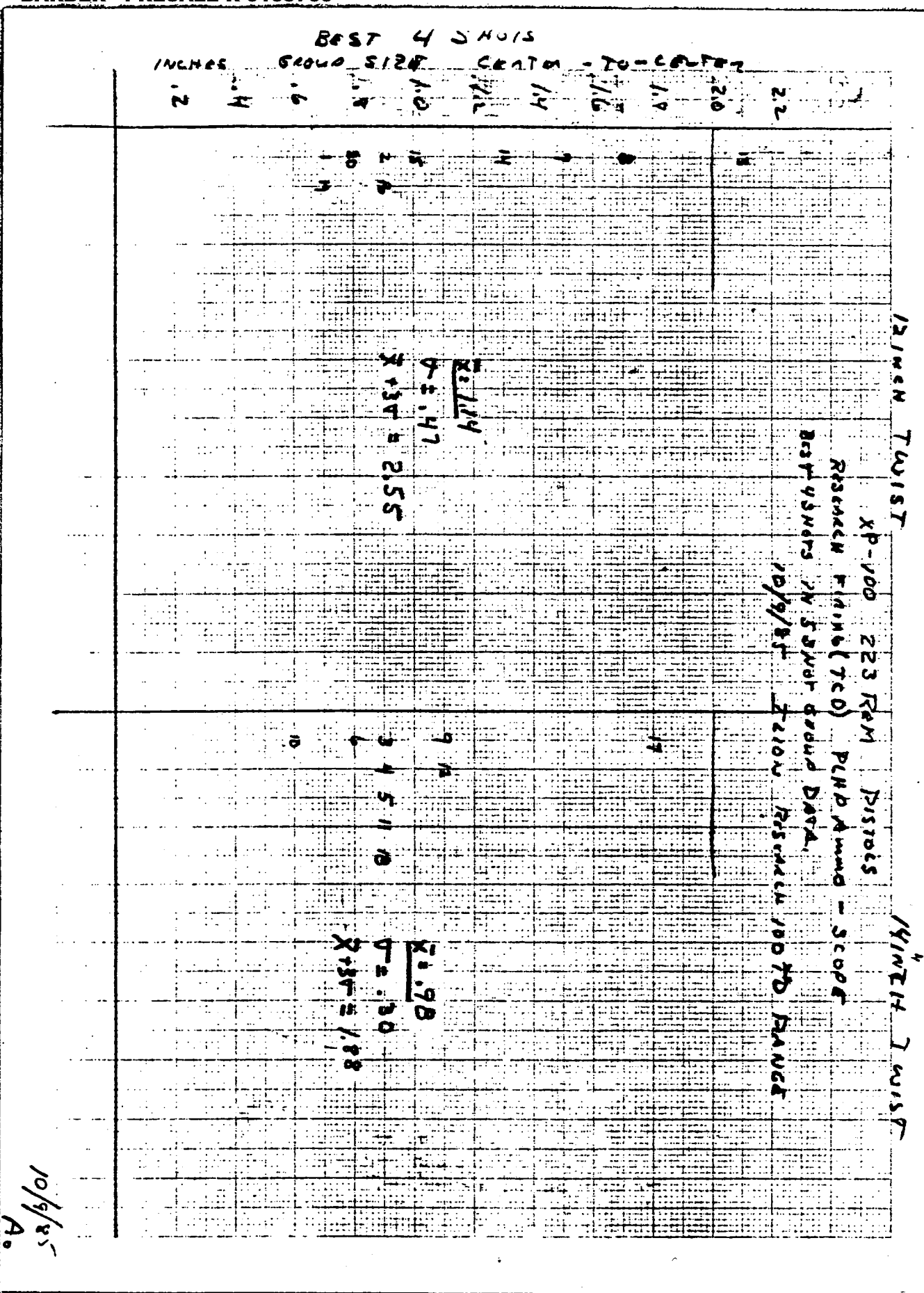
NOTE:

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



40 1353

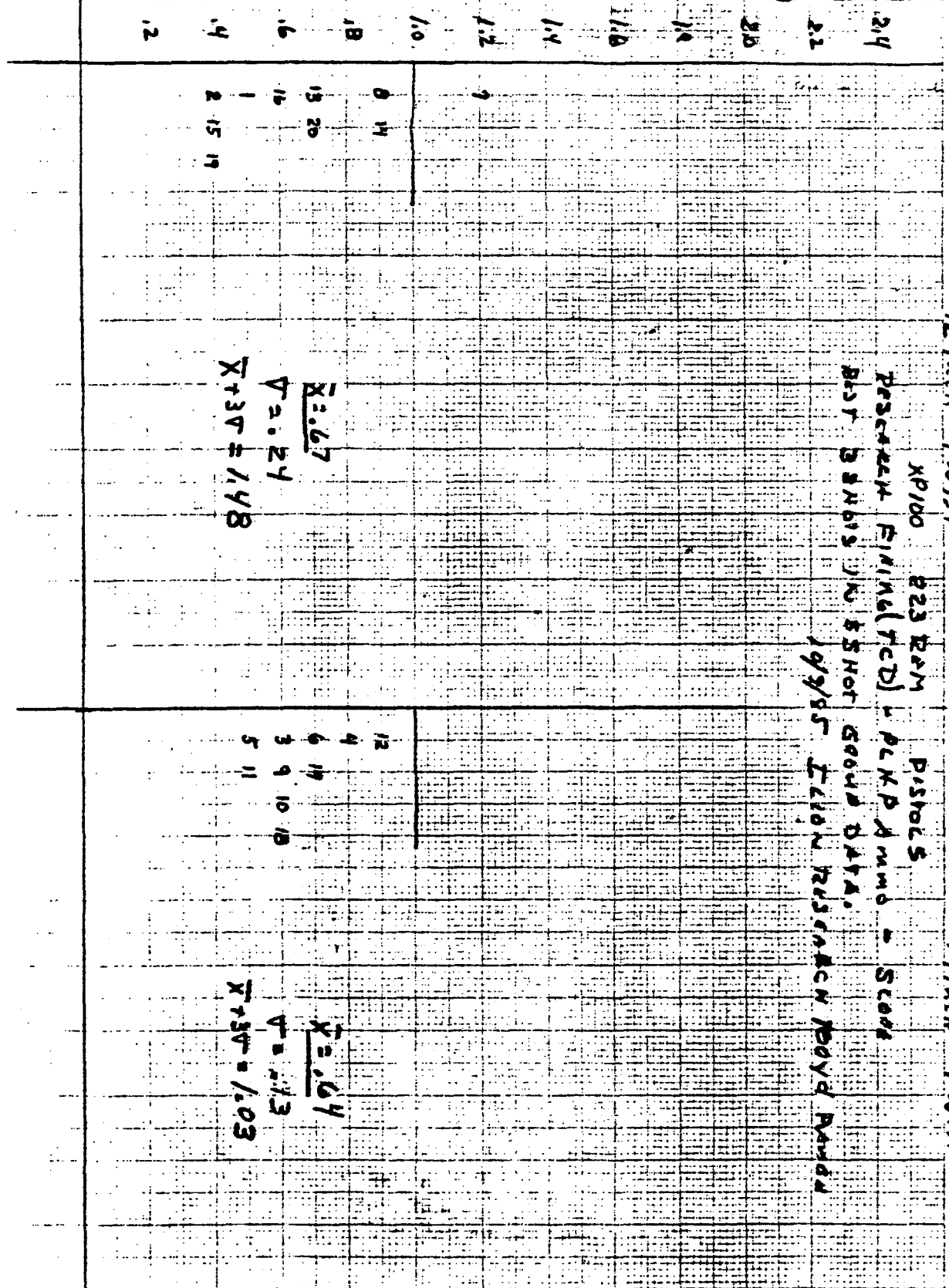
W-E KENDALL & BERNARD CO. NEW YORK



ESCI 04

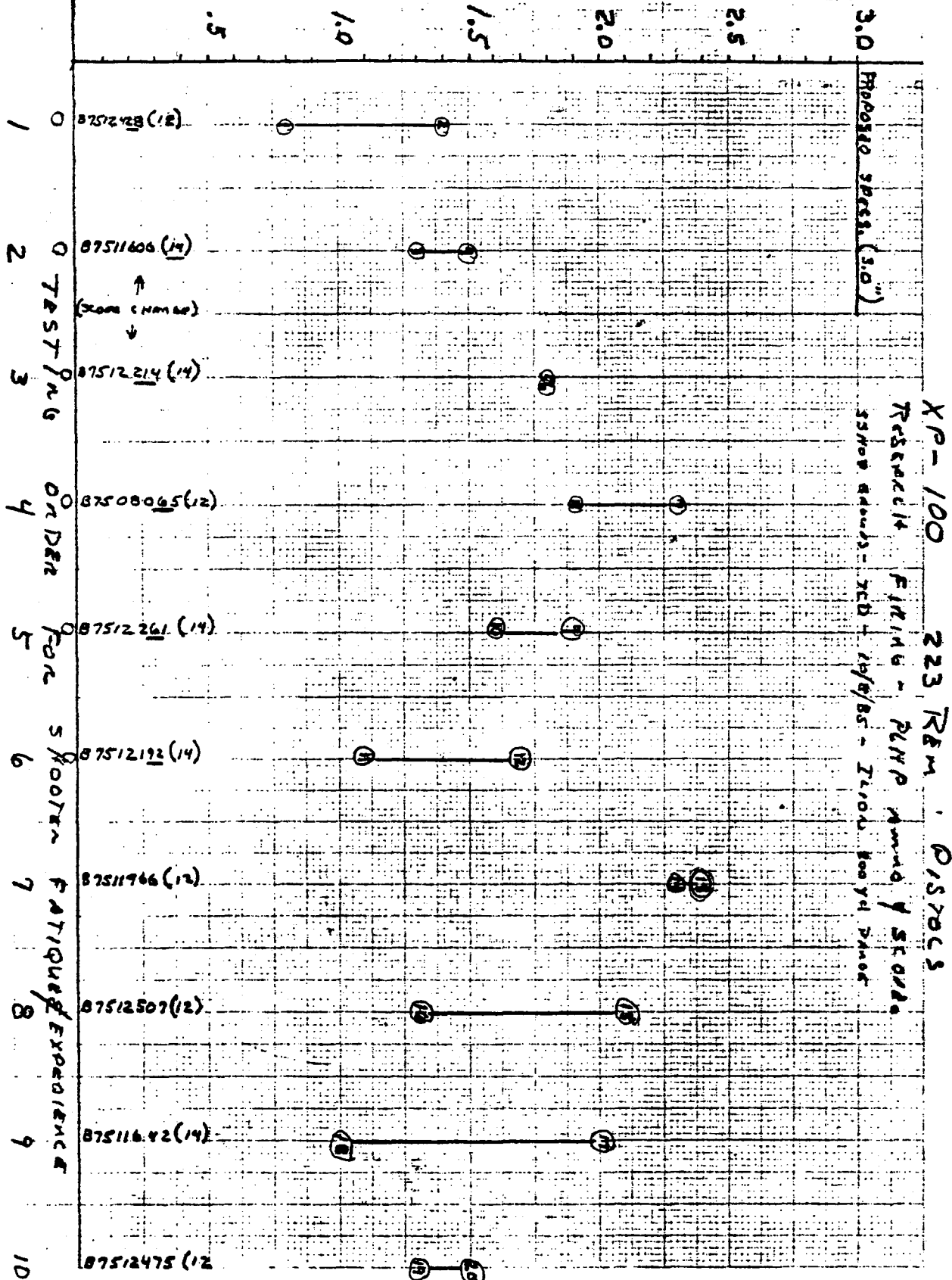
CONFIDENTIAL - SUBJECT TO PROTECTIVE ORDER

BEST 3 - 11-15
INCHES - GROUP SIZE - CENTER TO CENTER



10/9/85 A.

53 NOT
INCHES - GROUP SIZE CENTER-TO-CENTER



ESCI 04

ESCI 04

RANGE TARGETS DATA			
GUN (147067)	53 NOTES	837 45 NOTES	837 23 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	1.468	.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

"MALFUNCTIONS"

[illegible]
$$\begin{array}{r} 578 \\ \times 21 \\ \hline \end{array} = 600 - 1096$$

DATE: 10/24/85 Model: XP100 ; MAKE: 223 Rem
 TEST TITLE: ENDURANCE - (JACK)

SERIAL NO. B7512507

PREVIOUS
HOURS
600

TTL. NOS. FIRED: _____
 TTL. MALFUNCTIONS: _____
 MALFUNCTION RATE: _____

"MALFUNCTIONS"

Ammunition Load Size	ROUNDS	TTL. NOS. FIRED	TTL. MALFUNCTIONS	MALFUNCTION RATE	REMARKS (ON BACK)	YES	NO
R223R1	A. 100						
R223R1	A. 100						
R223R1	A. 100						
R223R1	A. 100						
R223R1	A. 100						
TOTAL	100						
BLACK STICK							
R223R1	A. 100						
TOTAL (PER MAL.)							

OCT 28, 1985
 Adams Co. Hargis

RD-6738 Rev. 2/85

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. HUGGICK	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"	LA507	
	CHAMBER DRAWING-223 REM- "INQUIRIES"	LA507	

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.
LA507 ^{Rem} ONLY	13, 20	XP100 USE ADDED
LA507 ^{Rem} ONLY	12, 15	XP100 USE ADDED
LA507 ^{Rem} ONLY	13, 14	223 REM. ADDED, 223 REM. ADDED TO TABULATION OF TRIGGER.

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, 12, 15 - INITIAL TRANSMITTAL OF ADDED 223
REM CALIBER TO MODEL XP-100 PISTOL.
REV. NO. 13, 14 - UPDATE LA507 "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 ⁺	2.2 ⁺ , 1.6 ⁺	1.90 ⁺ , 1.65 ⁺	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 ⁺
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 ⁺
35NOTS	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 167	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 7512 428 (12), B 7511 606 (14), B 7512 214 (14),
 B 7508 065 (12), B 7512 261 (14), B 7512 192 (14)

ACCURACY

TWIST, CHAMBER, BULLET WEIGHTS)

{ B 7511 966 (12), B 7511 642 (14)

{ F&P 40

{ WIN ~~ESS~~

{ GALLERY 2075 (PSP & PLHP)

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

DURANCE (STOCK)

100 RPS, FACTORY (SAUC PLHP AMMO - GOODISHA)

100 RPS, (EXPERIMENTAL PAINTER STOCK)

XP 100 - 223 REM DESIGN TEST

PROGRAM 8-02-85 AAW

1. ^{DONE} OBTAIN TEN 22CFR BARREL BLANKS (MODEL 800N)
- (a) FIVE - 222 REM FOR 14 INCH TWIST
- (b) FIVE - 223 REM FOR 12 INCH TWIST

2. ^{DONE} TURN BARREL CONTOUR TO APPROXIMATE 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 (1" ^{customized}) REMOVED FROM PISTOLS 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 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} ^{PARTI} PROOF AND ACCURACY TEST ALL TEN PISTOLS WITH 223 REM AMMO. (WITH TRACER AMMO BLANKS (R, W, F)).

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

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

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

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

RESHOOT ACCURACY OF ALTERED GUN
AND ONE CONTROL GUN.

FINALIZE 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
BARRELS. THE DOWN THROAT 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 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 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,loadins,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. 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.*

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 we 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 super.
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:

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.

- 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 accommodate 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 Augick
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.

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Test Data - Comments:

A. Accuracy

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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.

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

*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+)

AAHUGICK:js
1/7/86

NO	SHOTS	WEST	NORTH	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	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

	SLOTS	UNIT	HOLE	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>AVG</u>	<u>3.29</u>	<u>1.76</u>	<u>3.75</u>

140

TARGET ROLL ROOM
WITH "SCALE 10/3/85
A A HUGGINS

11.7 37.95 127.36

NOTE:

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

401353

401353

14 INCH TWIST

12 INCH TWIST

XP100 223 REM PISTOLS
RESIDUAL FIRING (TCB) - PLMP A.M. - 3000
5 SHOT GROUP - 10/8/85 - 1000 RESIDUAL TWO RANGE

PROPOSED SPACES

3.0

2.5

2.0

1.5

1.0

.5

INCHES - GROUP SIZE
CENTER - TO - CENTER

R = 1.72

V = 0.55

Y = 3.37

R = 1.58

V = 0.33

Y = 3.68

10/6/85

14 INCH TWIST

12 INCH TWIST

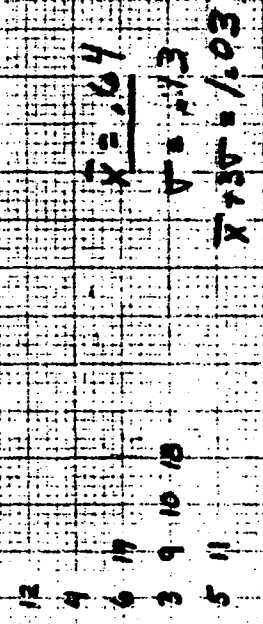
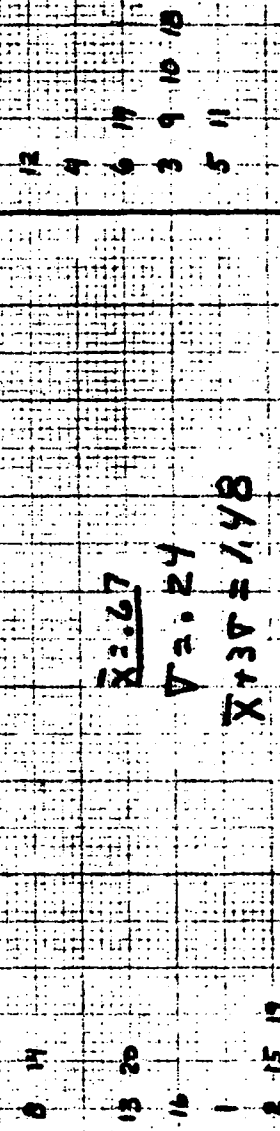
XP-100 223 REM PISTOLS
 RESERVEN FILING (TCO) PLIP AMMO - SCOPE
 BEST 450000 IN 500 YD GROUP DATA.
 10/9/85 TULLON RESERVEN 100 YD RANGE

BEST 4 500 YD
 GROUP SIZE
 INCHES
 2.2
 2.0
 1.9
 1.7
 1.6
 1.5
 1.4
 1.3
 1.2
 1.1
 1.0
 0.9
 0.8
 0.7
 0.6
 0.5
 0.4
 0.3
 0.2
 0.1
 0.0

$\bar{X} = 1.14$
 $\sigma = 0.47$
 $\bar{X} + 3\sigma = 2.55$
 $\bar{X} = 1.98$
 $\sigma = 0.30$
 $\bar{X} + 3\sigma = 1.88$

12 INCH TWIST
XP100 223 REM PISTOLS
RESEARCH FIRING (TCD) - PLHP Ammo - SCORP
BEST 3 SHOTS 170 \$ SHOT GROUP DATA.
10/2/85 ILLION RESEARCH MOYD AMMO

BEST 3 SHOTS
INCHES - GROUP S/R -
CENTER - 10-CENTIL



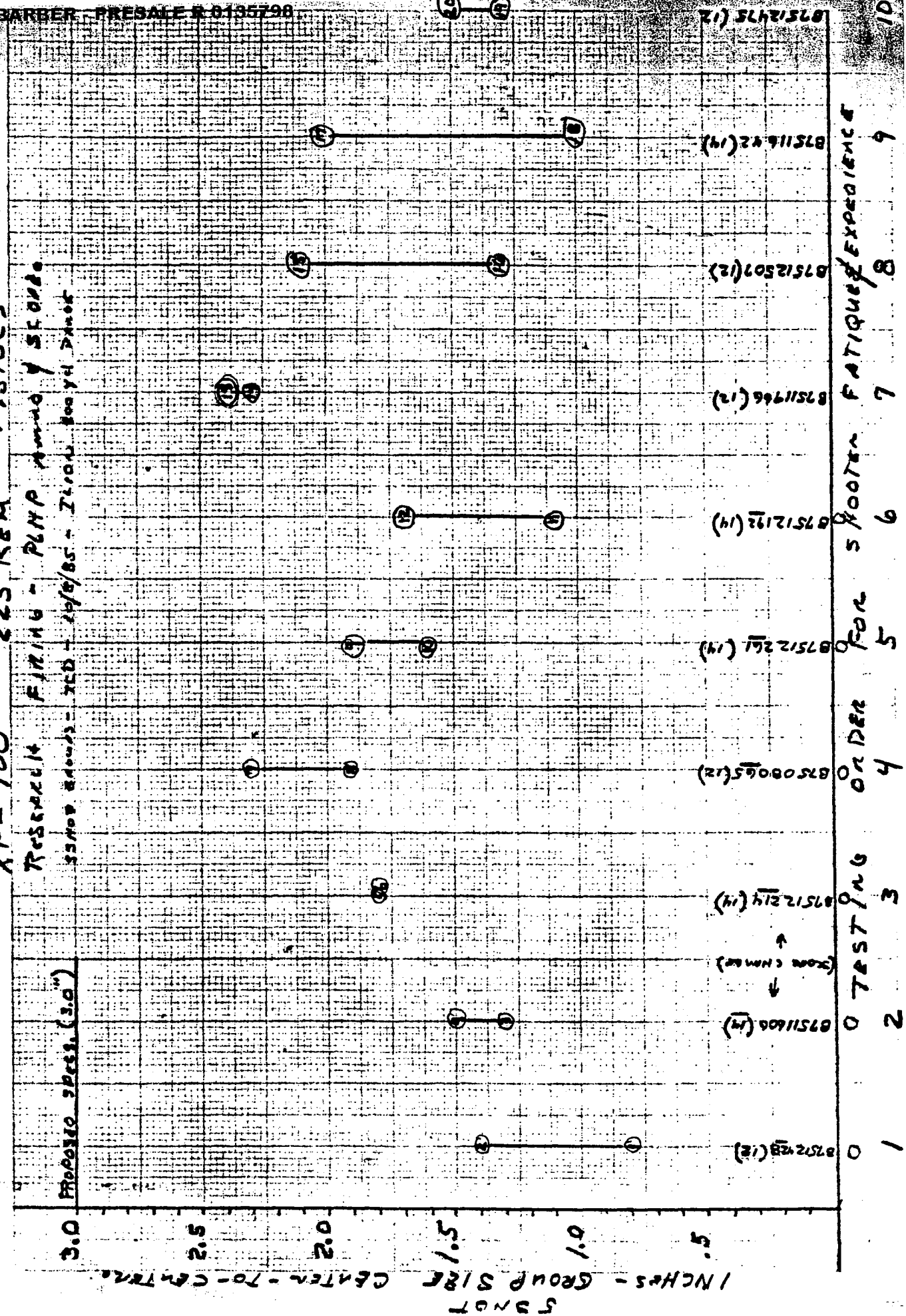
KOE
KENTON & LARSEN CO. INC. 1000
1000 1000 1000 1000

40 1353

XP-100 223 REM. DISCOS

RESEARCH FIRM - PLHP AND STONE
3300 3300 - 10/8/85 - 11/00 1000 1000

3.0 PROPOSED PRESS. (3.0")



53 Knots			
608 - 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
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.

		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

PREVIOUS
ROUND
21

DATE: 10/22/85

MODEL: XP10.0

DATE: 2 2 3

SERIAL NO. B751250

TEST TITLE: 223 XP/00 ENDYAMACB

TTL. NDS. FIRED:
TTL. MALFUNCTIONS:
MALFUNCTION RATE:

"HALF FUNCTIONS"

[illegible]
$$578_{21} = 600_{10} - 22$$

TTL. NOS. FIRED:
TTL. MALFUNCTIONS:
MALFUNCTION RATE:

[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. HUGGINS	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"	13, 20	XP100 USE ADDED
L4507 "inquiries"	12, 15	XP100 USE ADDED
"	13, 14	223 REM. ADDED, "223 REM" ADDED TO TABULATION OF TRAILER.

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. Huggins
 DESIGNER SIGNATURE

Reason for Change:

REV. NO. 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:

12.1.7 TWIST

A. 14.1.7 TWIST

7511966

7511642

	<u>223</u>	<u>5.56</u>	<u>223</u>	<u>5.56</u>
PLHD -	1.85 ⁺ , 1.65 ⁺	2.2 ⁺ , 1.6 ⁺	1.90 ⁺ , 1.65 ⁺	2.65 ⁺ , 1.56 ⁺
45NOTS	1.50 ⁺ , 1.00 ⁺	1.25 ⁺ , 1.0 ⁺	1.05 ⁺ , 1.50 ⁺	1.70 ⁺ , 1.25 ⁺
25NOTS	1.40 ⁺ , 0.75 ⁺	1.00 ⁺ , 1.0 ⁺	0.85 ⁺ , 1.00 ⁺	0.80 ⁺ , 0.80 ⁺
HD - 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 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 10	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
73T	0.91	1.30	1.60	2.12

OCT. 10, 85 A6

WRITER GUNS

B 75 12 428 (12), B 75 11 606 (14), B 75 12 214 (14),
B 75 08 065 (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)

{ F&D 40
WIN ~~ESS~~.
GALLERY 2075 (PSP & PLNP)

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

ENDURANCE (STOCK)

100 RPS, FACTORY (SAUC PLNP AMMU-GOONSTHAR.)

100 RPS: (EXPERIMENTAL PAINTER STOCK)

XP 100 - 223 REM DESIGN TEST

PROGRAM 8-02-85 AAW

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 1/2 TRIM 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 (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} PROOF AND ACCURACY TEST ALL TEN PISTOLS WITH 223 REM AMMO. (WITH THICK MATOR BRANAS (R, W, F).)

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

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

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

RENOTE 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
BARRELS. THE DETROIT 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.

NOTE

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.

BARBER - PRESALE R 0135809
From: A.R. 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)

~~BARBER - PRESALE R 0135810~~ *That's just why I did it late and
months to publish the report? Xc: W.H. Coleman, II
J.W. 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 super
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: x bar = 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:

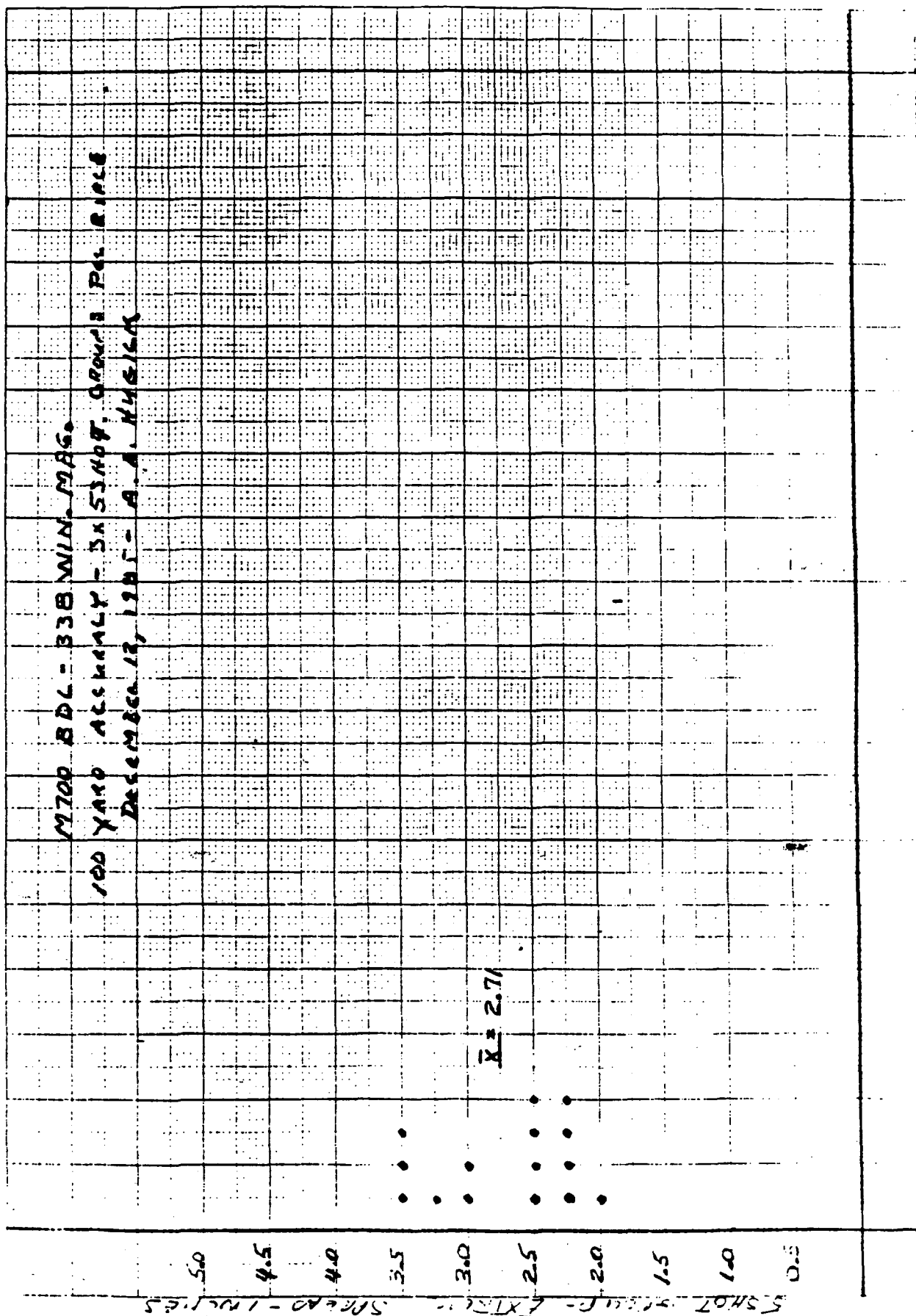
No malfunctions or feeding, extracting, ejection or firing were encountered with the five test rifles during accuracy shooting or shoulder fired field function test. One bolt closed hard malfunction was recorded and was associated with ammo headspace being at or greater than max with rifles at min firearm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

46 1323

NO. 2 REPRODUCED BY BARBER



RD-6738 Rev. 2/85

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. 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	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		"REMOVED", "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 alter.

APPROVED: _____

ENTERED ✓

Report No. 852491

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

		AREA OF TESTING	
☐ Developmental	☐ Safety Related	☐ Litigation	
☒ Design Assistance	☐ Competitive Evaluation	☐ Warehouse Audit	
☐ Pre-Pilot	☒ New Design	☐ Cost Reduction	
☐ Pilot	☐ Design Change	Stake _____	
☐ Production Assistance	☐ Plant Assistance	☒ Other <u>ADDED CALIBER</u>	

FIREARM STATS	REPORT REQ'D.	
MODEL: <u>700 BDL</u>	FORMAL _____	DATE REQUESTED: <u>Sept 6 '75</u>
CAL or GAGE: <u>338 WIN MAG</u>	TEST RESULTS ONLY <u>X</u>	DATE NEEDED BY: <u>1987</u>
BARREL TYPE: <u>MAG</u>		REQUESTED BY: <u>A. A. HICKMAN</u>
PROOFED: YES <u>X</u> NO _____		WORK ORDER NO: <u>50236-301</u>

TEST TYPE			
☐ Strength Test	☐ Ammunition Test	☐ Dry Cycle Test	☐ Photo/Video
☒ Function Test	☐ Environmental Test	☐ Measurements	☐ Other _____
☒ Accuracy Test	☐ Customer Complaint	☐ Endurance Test	

EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

FIVE MODEL 700 MAG BDL RIFLES CALIBER 338 WIN MAG WERE FABRICATED IN THE CUSTOMER SHOP (BORN AND BORN UNIT) AND COMPLETED IN PRODUCTION (PROCESSED BY GUNNER IE STOCK ASSEMBLY, SIGNS, MAGAZINE, FIRING PIN, EXTRACTOR). CONDUCT FUNCTION & ACCURACY TEST, PLUS PROOF — DO NOT CONDUCT A PROOF TEST FOR THESE RIFLES WILL BE
NEED FOR WRITER SEMINAR ETC.
PLEASE,

GUNS REQUIRED:

B6688062, B6688083, B6688040, B6688070.
B6688071

NOTE: NO firearms or parts will be tested in the Lab unless they are accompanied by a Work Request, and both are delivered to the Lab 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 OF GUNS
 - IF RECORD IS EXCESSIVE 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. 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 RANGE
TESTS.

RETURN TO WRITER FOR STORAGE AND
REPORT WRITING.

AAH

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 ✓

22640 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 ✓

1605

FRONT SIGHT

A. A. HUGLICK

16026

FRONT SIGHT

SEPT 3, 85

EXT. 461

1611

FRONT SIGHT

1617

FRONT SIGHT

BARBER - PRESALE R 0135825

MIN - MAX

Serial # B6688062 SIGHT ADJUSTMENT - DATA.

CENTERFIRE PATTERNS # 1

IN CIR

1 IN = 0

2 IN = 0

3 IN = 0

HS = 3.418

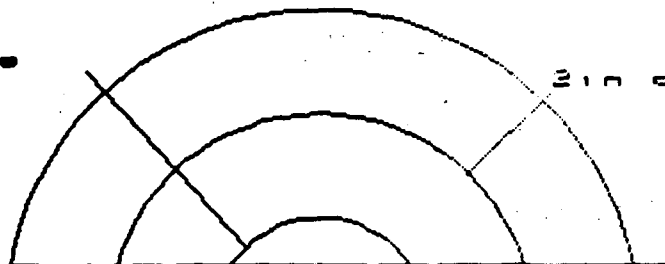
VS = 26.876

GS = 26.892

+ ————— POA

1 in circle

2 in =



PATTERN #

NUMBER OF SHOTS	:	10	
MAXIMUM X & Y	:	3.192	-0.226
MINIMUM X & Y	:	18.685	-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	:	13.4520	
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

V6 = 3.785

GS = 4.240

+ _____ POA

PATTERN

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 = 1.824

VS = 2.376

GS = 2.929

+ _____ 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:

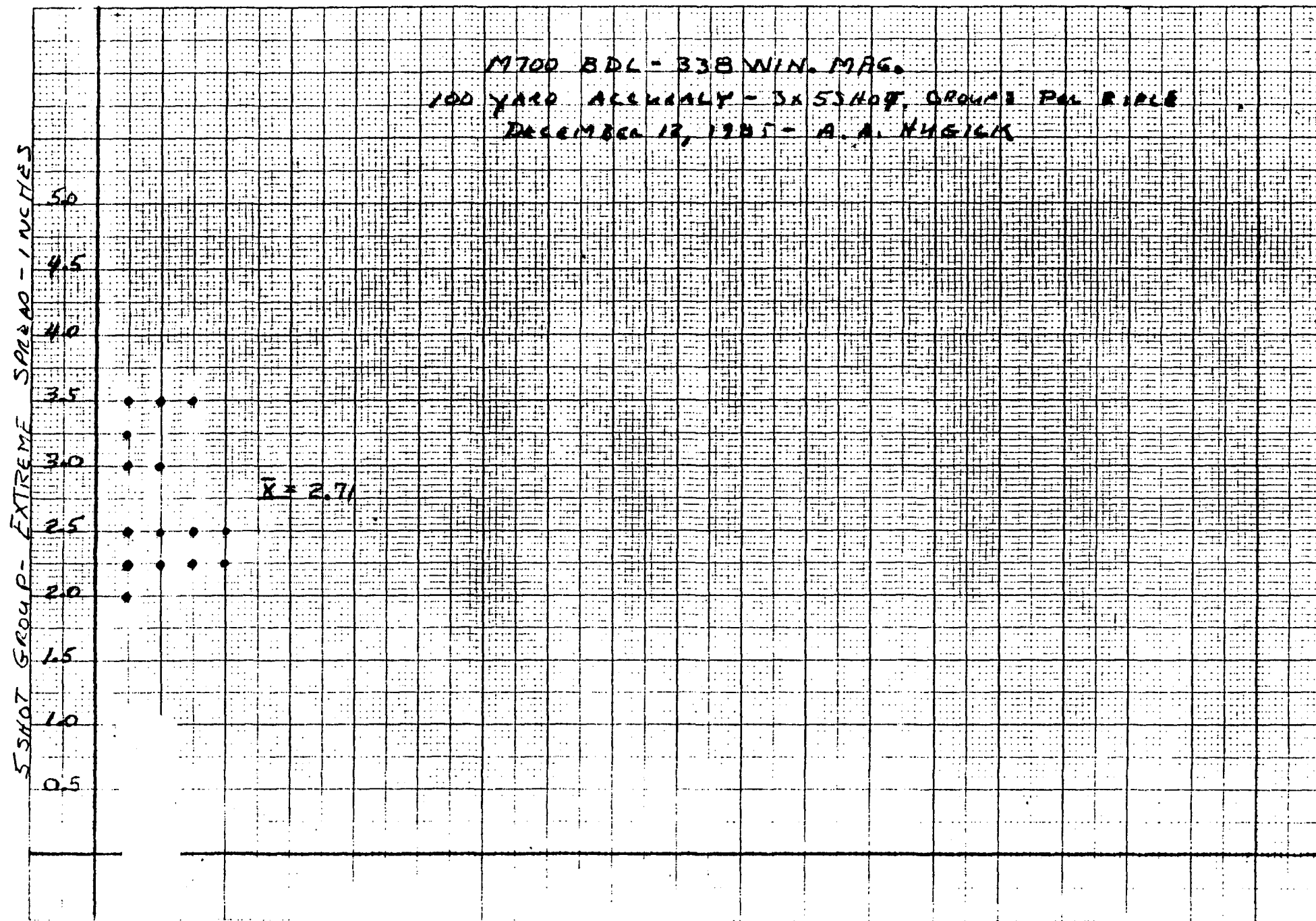
The five rifles were shoulder fired for accuracy in the Custom Shop 100 yard range with group size data as follows: $\bar{x}$ = 2.71 inches, min group = 200 inches, and max group = 3.61 inches firing Winchester brand of test ammunition in that Remington does not produce caliber 338 Win. Mag. ammunition. 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



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. HUGGICK	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		"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. Huggick
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: _____

ENTERED ✓

Report No. 852491

RESEARCH TEST & MEASUREMENT LAB WORK REQUEST

		AREA OF TESTING	
☐ Developmental	☐ Safety Related	☐ Litigation	
☒ Design Acceptance	☐ Competitive Evaluation	☐ Warehouse Audit	
☐ Pre-Pilot	☒ New Design	☐ Cost Reduction	
☐ Pilot	☐ Design Change	Stake _____	
☐ Production Acceptance	☐ Plant Assistance	☒ Other <u>ADDED CAPS</u>	

FIREARM STATS.	REPORT REQ'D.	
MODEL: <u>700BDC</u>	FORMAL _____	DATE REQUESTED: <u>Sept 6, 85</u>
CAL or GAGE: <u>338 WIN MAG</u>	TEST RESULTS ONLY ☒	DATE NEEDED BY: <u>1987 Oct</u>
BARREL TYPE: <u>MAG</u>		REQUESTED BY: <u>A.A. HUGLEY</u>
PROOFED: YES ☒ NO _____		WORK ORDER NO: <u>EO236-306</u>

TEST TYPE

☐ Strength Test	☐ Ammunition Test	☐ Dry Cycle Test	☐ Photo/Video
☒ Function Test	☐ Environmental Test	☐ Measurements	☐ Other _____
☒ Accuracy Test	☐ Customer Complaint	☐ Endurance Test	

EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

FIVE MODEL 700 MAG BDC RIFLES CALIBER 338 WIN MAG WERE FABRICATED IN THE CUSTOMER SHOP (BORAN ASSC UNIT) AND COMPLETED IN PRODUCTION (PROCESSING GAGE 10 STOCK ASSEMBLY, SIGHTS, MAGAZINE, FIRING PM, EXTRACTOR). CONDUCT FUNCTION & ACCURACY TEST PLUS PROOF — DO NOT CONDUCT A DURATION 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 AT WRITER'S HOME.
- X TRY NOT TO SCRATCH OR MARK DURING TEST.
9. RETURN TO WRITER FOR STORAGE AND REPORT WRITING.

NAME S. T. C. 22

SEPT 3, 1963

JERRY HILL:

1. WORK ORDER EO 236-306
2. ASSEMBLE FIVE M700-336
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	EXTRACTOR	A. A. HUGICK SEPT 3, 85 EXT. 461
17017	EJECTOR	
17019	EJECTOR SPRING	

SERIAL NO. B6608670

Field Function

HALF FUNCTION RATE: 8

“MULTICTIONS”

[illegible]

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

+ ————— POR

1 in circle

2 in c

PATTERN #

1

NUMBER OF SHOTS	:	10	
MAXIMUM X & Y	:	3.192	-.226
MINIMUM X & Y	:	18.685	-16.191
CENTROID X & Y	:	1.457	-2.765
POR TO CENTROID RAD:	:	3.1249	
MIN RADIUS	:	9.7426	
MEAN RADIUS	:	11.9977	
MAX RADIUS	:	13.4520	
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 = 4.248

+ ————— POA

PATTERN #

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 #	1	2
NUMBER OF SHOTS	5	
MAXIMUM X & Y	2.088	.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 Mac,
WITH SIGNS (5.709 POUNDS)

● 700 CLASSIC MAG CONTOUR (WITH SWING EJECTS)
SAP WOOD STOCK ~ 1.960 POUNDS

HEART WOOD STOCK ~ 2.268 POUNDS

SAP STOCK ~~cont~~

7.669 lbs,

HEART STOCK GUN

7.977

1.960	2.268
5.709	5.709

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

7.823 LBS

PICK
ONE

= 7. LBS 13 OZ. NOMMAC

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

= 8.0 LBS NOMMAC

PICK ONE



CAPACITY - (INCLUDING ONE CHAMBER) = 4 ROUNDS
~~AAA~~

REMINGTON ARMS COMPANY, INC.

Xc: T.C. Douglas

INTER-DEPARTMENTAL CORRESPONDENCE

Remington.



PETERS



"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

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington*PETERS*

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

February 20, 1986

D. J. AndersonMODEL 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.

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	<u>20</u>
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	<u>18</u>
PERMANENT INVESTMENT	\$ 22
WORKING CAPITAL	\$ 762
TOTAL INVESTMENT	<u>\$ 784</u>
<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

4,000

RIMFIRE RIFLES

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

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.

Terry Douglas

*To Cam
5/21/85*

*To Cam again
7/25/85*

*Bruce
Are these 2/27
Selling prices correct?*

1. Development Responsibility (Check One) ☒ Research

☐ Production

1. Development Schedule

Third year revised 7/25

Prototypes Available _____ 3 Mos. Inventory Established _____

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

PROJECT APPROVAL

V. Estimates

estimates	87	Years 89				
	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	PROJET BASIS 236M		132M 267M			
● Program Investment (\$M) (Incremental Costs to Implement)						
Research Expense	\$32M					
Production Expense	40M					
Permanent Investment	10M					
Increase in Working Capital	554M					
			556M 631M			
● Net Return on Program Investment (Years 1 & 3 only)	18.9%		10.6% 19.4%			
● Payback (# of Years)	3.5 3.8					
● Manpower (Man Years of Effort)	Mktg. 0	Prod. 3	Res. .1			
● Probability of Success (Check One)	X	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 (PRG) 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.

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) X ResearchProduction BillIII. Development Schedule

Prototypes Available _____ 3 Mos. Inventory Established _____

Trial & Pilot Complete 7 MO. AFTER Announce to Trade _____PROJECT APPROVALIV. Estimates

	<u>87</u>	Years	<u>89</u>	
	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u> <u>5</u>
NET SELLING PRICE	\$ 330.30		\$ 328.05	
• Forecast Sales Volume (M Units)				
Total	5.0M		5.3M	
Incremental	2.5M		2.6M	
• Pretax Earnings (\$M)				
Full Book				
Incremental	<u>PROJECT BASIS</u> 236M		132M	
• Program Investment (\$M)				
(Incremental Costs to Implement)				
Research Expense	\$32M			
Production Expense	40M			
Permanent Investment	10M			
Increase in Working Capital	554M		556M	
• Net Return on Program Investment				
(Years 1 & 3 only)	18.9%		10.6%	
• Payback (# of Years)	<u>3.5</u>			
• Manpower (Man Years of Effort)	Mktg. <u>0</u>	Prod. <u>3</u>	Res. <u>.1</u>	
• Probability of Success (Check One)	<u>X</u> High	Medium	Low	

V. Preparers

Marketing _____

Production D. AndersonResearch Terry C. Douglas

Business Services _____

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 ☐ ProductionIII. 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 ☐ LowV. Preparers

Marketing _____

Production _____

Research Larry C. Douglas

Business Services _____

CALIBER ADDITION
24" MAGNUM - LONG ACTION

MODEL 700 BDL .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