RD-69-8

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

cc: W.H. Coleman, II/File
J.W. Bower
J.G. Hill
J.R. Snedeker
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 860972
APRIL 21,1986

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

ABSTRACT:

Research and Development finds the Trial and Pilot Evaluation of the Model XP-100 .223 REM caliber to be acceptable. However, the following should be investigated, by production:

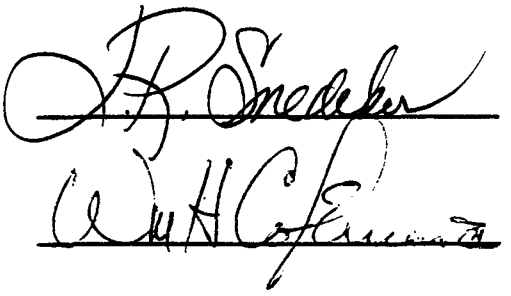
1. During the Visual inspection all of the pistols were found to have some random spots of glue, and the stock luster was mismatched. More care needs to be taken during the assembly of the stocks.

Prepared by: F.L. SUPRY
Date Prepared: 4/21/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab

W.H. COLEMAN, II
New Products Research Lab Director



REP.#860972 W.O.# 925C0805

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

On April 07, 1986 a request to conduct a Trial and Pilot Evaluation on the Model XP-100 .223 REM. caliber pistol was received by the Test Lab. The evaluation would use eight guns, withdrawn from the warehouse, and consist of Visual Inspection, and 100 Yard Accuracy.

SCOPE OF TEST:

To determine if the production run samples meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the .223 REM. caliber, was found to be acceptable in all phases of the Trial and Pilot Evaluation.

REPORT TEXT:

1. VISUAL INSPECTION:

A. The visual inspection committee found no major items in the appearance of the pistols inspected.

B. The following general comments were made in overall reference to the pistols:

a. The luster of the pistols needs improvement.

b. The removing of the excess glue needs improvement.

C. The pistols used in the visual inspection were:

B7511233	B7511217	B7511204
B7511234	B7511598	B7511186

D. Comments recorded for each individual pistol are located in the appendix of this report.

2. ACCURACY:

The Remington standard for the XP-100, chambered in the .223 REM caliber is an extreme Group Size of: 3.0 inches for a five (5) shot group.

A. Eight (8) pistols were tested for 100 yard accuracy.

B7511233	B7511217	B7511204	B7511137
B7511234	B7511598	B7511186	B7511155

B. The following averages were established:

a. Group Size: 1.99 inches

b. Horizontal Spread: 1.42 inches

c. Vertical Spread: 1.51 inches

B. Accuracy results per individual pistol are located in the appendix of this report.

TEST PROCEDURE:

1. VISUAL INSPECTION:

A. The Visual Inspection Committee consisted of W. Warren, (Q.C.); R. Howe, F. Supry, and T. Douglas, (Research).

B. Six (6) of the eight (8) pistols were used for the visual inspection.

C. Each pistol was wiped down with a clean white Coyne towel, and examined by each member of the Visual Inspection Committee. All comments were recorded.

2. ACCURACY:

A. The accuracy was shot by T. Douglas, J. Ronkainen, and K. Calkins, (Research), at the R & D 100 yard range.

B. Leupold bases (standard long action) and Leupold one (1) inch rings were used, in conjunction with a Redfield 12X scope.

C. Remington ammunition, index R223R2; code U08-002301, 55 grain hollow point, was used for the 100 yard accuracy test.

E. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

F. A total of three (3), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

G. The patterns were analyzed for group size, horizontal spread, and vertical spread, using the HP 9000 computer. The averages were calculated for each pistol.

APPENDIX

VISUAL INSPECTION:

GENERAL COMMENTS:

The pistols were found to be acceptable; however, more care should be taken during the sanding and the gluing operations.

COMMENTS PER INDIVIDUAL RIFLE:

B7511233	Glue marks: bottom of forend and left side diamond. Bright mar on trigger. Braze shows through under bolt handle. Finish varies in luster.
B7511217	Finish varies in luster. Braze shows through under bolt handle. White line spacers look dirty. Forend tip rough at barrel groove. Diamond cracked, bottom rear of pistol grip. Random glue marks.
B7511204	Random glue marks. Upper part of right grip is rough. Finish varies in luster.
B7511234	Random glue marks. Barrel grooves are rough. Mar on bolt handle. Striations do not meet with the center of the diamond.
B7511598	Several cutter marks on the inside of the receiver. Left side diamond gouged. Braze shows through under bolt handle. Random glue marks.
B7511186	Random glue marks. Mar bottom rear of bolt. Burr on bolt handle and bolt lug.

ACCURACY:

ACCURACY PER INDIVIDUAL RIFLE:

SERIAL#	GROUP SIZE (in.)	HORIZONTAL (in.)	VERTICAL (in.)
B7511155	1.49	1.49	0.76
	3.01	2.02	2.90
	2.32	1.51	1.78
AVERAGE =	2.27	1.67	1.81
B7511217	1.92	1.92	0.73
	0.97	0.45	0.97
	3.04	2.64	2.13
AVERAGE =	1.98	1.67	1.28
B7511233	2.22	2.10	1.45
	1.72	1.44	1.45
	1.44	1.37	0.67
AVERAGE =	1.79	1.64	1.19
B7511137	1.21	0.76	1.12
	1.26	0.90	1.13
	3.24	2.96	1.32
AVERAGE =	1.90	1.54	1.19
B7511598	1.44	1.44	1.00
	1.60	1.55	0.85
	1.93	1.18	1.71
AVERAGE =	1.66	1.39	1.19
B7511186	1.87	1.13	1.68
	1.85	1.80	1.50
	2.03	0.83	1.86
AVERAGE =	1.92	1.25	1.67

ACCURACY: (continued)

ACCURACY PER INDIVIDUAL RIFLE:

SERIAL#	GROUP SIZE (in.)	HORIZONTAL (in.)	VERTICAL (in.)
B7511234	1.85	0.60	1.85
	2.56	0.74	2.52
	2.26	1.42	2.02
AVERAGE =	2.22	0.92	2.13
B7511204	1.72	1.11	1.32
	2.83	1.64	2.31
	2.04	1.67	1.18
AVERAGE =	2.20	1.47	1.60

AVERAGE GROUP SPREAD WITH 5, 4 , AND 3 SHOTS

GUN NUMBER	5 SHOT GROUP (in.)	4 SHOT GROUP (in.)	3 SHOT GROUP (in.)
B7511155	2.27	1.41	1.29
B7511217	1.98	1.53	1.14
B7511233	1.79	1.28	1.00
B7511137	1.90	0.85	0.61
B7511598	1.66	1.40	1.02
B7511186	1.92	1.50	1.10
B7511234	2.22	1.66	1.26
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J.G. Hill
J.R. Snedeker
F.L. Supry

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Research and Development finds the Trial and Pilot Evaluation of the Model XP-100 .223 REM caliber to be acceptable. However, the following should be investigated, by production:

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Date Prepared: 4/21/86

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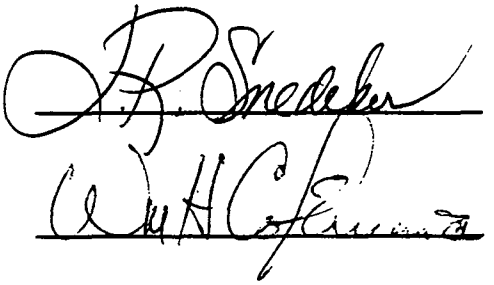

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TO: J.R. Snedeker
FROM: F.L. Supry

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SCOPE OF TEST:

To determine if the production run samples meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the .223 REM. caliber, was found to be acceptable in all phases of the Trial and Pilot Evaluation.

REPORT TEXT:

1. VISUAL INSPECTION:

A. The visual inspection committee found no major items in the appearance of the pistols inspected.

B. The following general comments were made in overall reference to the pistols:

a. The luster of the pistols needs improvement.

b. The removing of the excess glue needs improvement.

C. The pistols used in the visual inspection were:

B7511233	B7511217	B7511204
B7511234	B7511598	B7511186

D. Comments recorded for each individual pistol are located in the appendix of this report.

2. ACCURACY:

The Remington standard for the XP-100, chambered in the .223 REM caliber is: 3.0 inches in any "around the clock" position from the point of aim, for a five (5) shot group.

A. Eight (8) pistols were tested for 100 yard accuracy.

B7511233	B7511217	B7511204	B7511137
B7511234	B7511598	B7511186	B7511155

B. The following averages were established:

a. Group Size: 1.99 inches

b. Horizontal Spread: 1.42 inches

c. Vertical Spread: 1.51 inches

B. Accuracy results per individual pistol are located in the appendix of this report.

TEST PROCEDURE:

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A. The Visual Inspection Committee consisted of W. Warren, (Q.C.); R. Howe, F. Supry, and T. Douglas, (Research).

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C. Remington ammunition, index R223R2; code U08-002301, 55 grain hollow point, was used for the 100 yard accuracy test.

E. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

F. A total of three (3), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

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TEST LAB

7

#860972 - 21 APRIL 86
XP-100 .223 REM
TRIAL & PILOT

#24

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

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Date Prepared: 4/21/86

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J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab

W.H. COLEMAN, II
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The pistols were found to be acceptable; however, more care should be taken during the sanding and the gluing operations.

COMMENTS PER INDIVIDUAL RIFLE:

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Glue marks: bottom of forend and left side diamond.
Bright mar on trigger.
Braze shows through under bolt handle.
Finish varies in luster.

B7511217
Finish varies in luster.
Braze shows through under bolt handle.
White line spacers look dirty.
Forend tip rough at barrel groove.
Diamond cracked, bottom rear of pistol grip.
Random glue marks.

B7511204
Random glue marks.
Upper part of right grip is rough.
Finish varies in luster.

B7511234
Random glue marks.
Barrel grooves are rough.
Mar on bolt handle.
Striations do not meet with the center of the diamond.

B7511598
Several cutter marks on the inside of the receiver.
Left side diamond gouged.
Braze shows through under bolt handle.
Random glue marks.

B7511186
Random glue marks.
Mar bottom rear of bolt.
Burr on bolt handle and bolt lug.

ACCURACY:

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ACCURACY: (continued)

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SERIAL#	GROUP SIZE (in.)	HORIZONTAL (in.)	VERTICAL (in.)
B7511234	1.85	0.60	1.85
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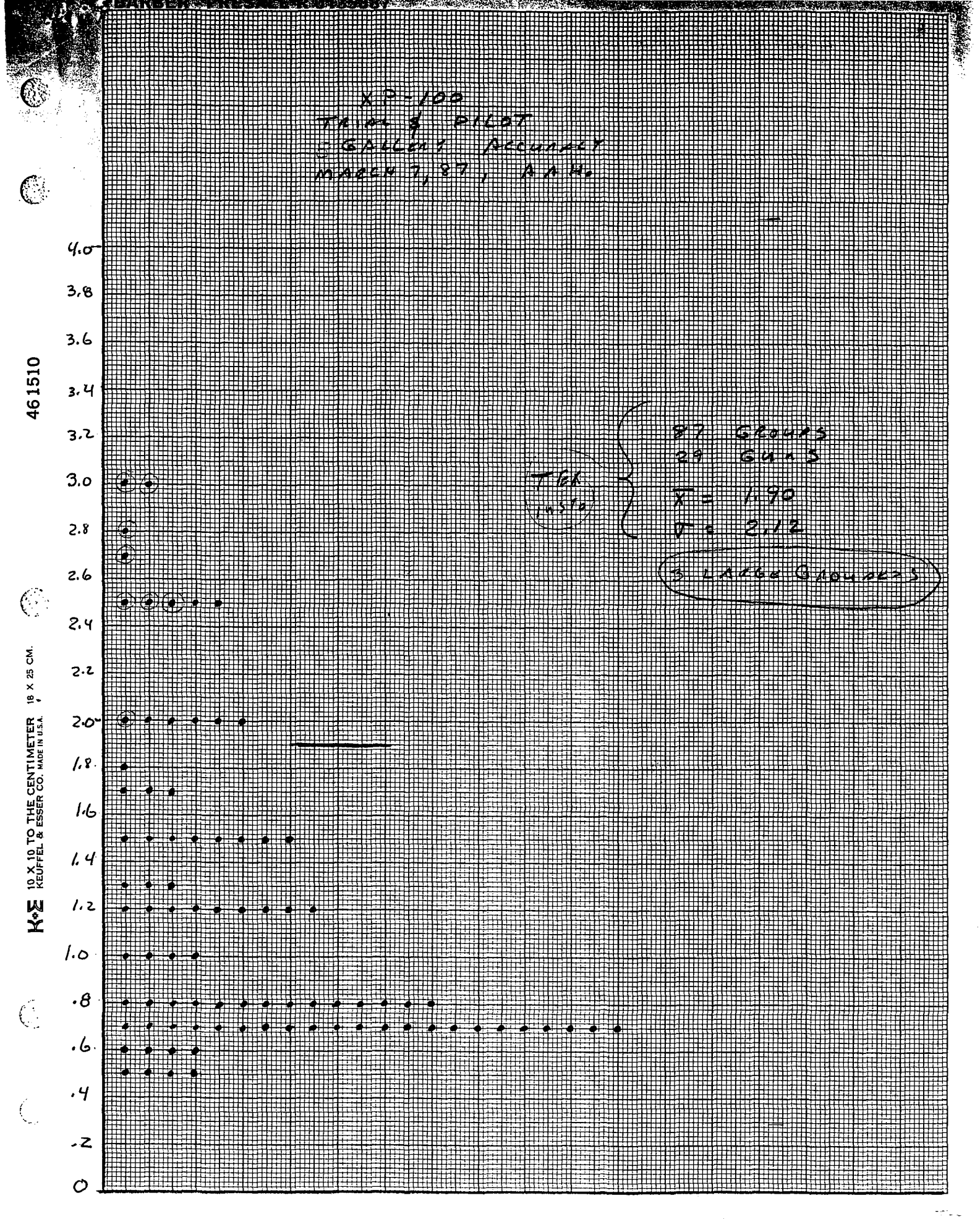


SPECIAL TEST REPORT

MODEL XP100 223 SHOOTER RC Marcantel DATE 3-5-86

Gun No.	Ga./ Cal.	Heavy Jack Rds.	Type	Results	Light Jack Rds.	Type	Results
1137X	223	3 Shot 55 3 Groups	H.P.	.77 .88 .07 (.73)		0818	0.7 0.6 0.[illegible] (.6[illegible]
1220				0.7 0.7 0.8 (.73)		1219	0.7 0.7 [illegible]
1181				1.2 1.3 1.5 (1.3)		1233X	1.7 1.8 [illegible] (1.7)
211				0.8 1.0 1.0 (.93)		0631	EDS
155X				1.2 1.5 1.5 (1.40)			
903				0.8 0.7 2.0 (1.16)			
215				1.5 0.8 1.5 (1.26)			
697				1.2 0.8 1.0 (1.06)			
95				2.5 1.2 0.8 (1.5)			
59				1.0 0.8 0.7 (.83)			
72				1.5 1.5 2.0 (1.66)			
74				2.0 1.7 1.2 (1.63)			
503				2.0 2.5 2.8	2.43		
24X				0.7 0.8 1.2 (.9)			
17X				0.5 0.7 0.7 (.63)			
25				2.0 1.5 1.2 (1.56)			
75				2.5 0.8 0.7 (1.33)			
34X				0.8 0.7 0.7 (.73)			
55				0.5 0.7 0.7 (.63)			
30				2.0 1.3 1.2 (1.5)			
49				0.5 0.8 0.8 (.7)			
98X				0.7 0.7 0.8 (.73)			
99				0.7 0.5 1.3 (.83)			
581				2.5 2.7 3.0	2.73		
76				3.0 2.5 1.2	2.23		
56X				0.7 0.6 0.6 (.63)			

cc: J. White

TO: D. CHRISTIE

ILION RESEARCH DIVISION

FIREARMS WITHDRAWAL AND ~~RETURN~~

DATE 4/7/86

LETTER NO. 2220

QUANTITY 8

RAMAC # 925492

MODEL XP-100 CAL./GA. 223 WORK ORDER 925 C-0805

SERIAL NOS.

	B7511217	B7511186	
LIBRARY	B7511137	B7511598	
	B7511155		
	B7511234		
	B7511233		
CHECKOUT	B7511204		

(7) [X] Will Be

(1) [X] Will Not Be Returned

To be used for:

[X] Testing

[ ] Other _____

REMARKS:

AAHugick:js

Approved

KR-100 DESIGN TEST ITEMS (WRITER'S) 10-23-85

- ACCURACY (223) - 12" TWIST GUN - } FOR 40 GRAIN
  14" TWIST GUN - } WM-65 GRAIN
  2 REM-GALLERY LOTS.

- RECUT CHAMBER TO 5.56 THROAT. 11-5-85

- ACCURACY (5.56) - 12" TWIST GUN } FOR 40 GRAIN
  14" TWIST GUN } WM-65 GRAIN
  LAB-LOT USER ACCURACY.

- 1100 ~~ROUNDS OF KP-100 ENDURANCE (WITH STOCK/FOREARM TO ONE GUN TO MAKE OR 1000 RDS.~~ I

- PAINTED STOCK FEASIBILITY - (SAND TEXTURE OR KRINKLE)
  PLUS ONE STOCK ENDURANCE (200 ± ROUNDS).

- WRITER'S GUNS (FUNCTION / INSPECT / SHIP / ____)

~~TRANSMIT DRAWINGS BY NOV 1, 1985 (10" TWIST)~~

TRIAL & PILOT REPORT NOV 1, 1985
TRIAL & PILOT REPORT AMMUNITION WHEN LAST TEST MATERIAL IS QUALIFIED.
" "
BLACK STOCK BARREL GROOVE RECUT. (WRITER'S SEMINAR)

A. A. HUGICK.

RD-69-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DU PONT) PETERS (DU PONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

cc: W.H. Coleman, II/File
J.W. Bower
J.G. Hill
J.R. Snedeker
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 860972
APRIL 21,1986

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

ABSTRACT:

Research and Development finds the Trial and Pilot Evaluation of the Model XP-100 .223 REM caliber to be acceptable. However, the following should be investigated, by production:

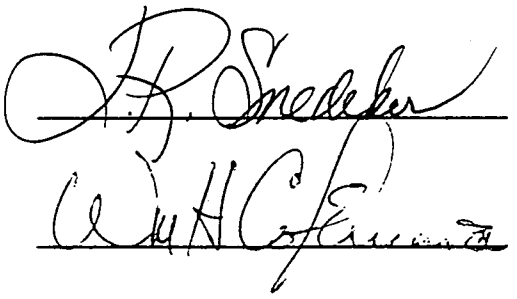
1. During the Visual inspection all of the pistols were found to have some random spots of glue, and the stock luster was mismatched. More care needs to be taken during the assembly of the stocks.

Prepared by: F.L. SUPRY
Date Prepared: 4/21/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab

W.H. COLEMAN, II
New Products Research Lab Director



REP.#860972 W.O.# 925C0805

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

On April 07, 1986 a request to conduct a Trial and Pilot Evaluation on the Model XP-100 .223 REM. caliber pistol was received by the Test Lab. The evaluation would use eight guns, withdrawn from the warehouse, and consist of Visual Inspection, and 100 Yard Accuracy.

SCOPE OF TEST:

To determine if the production run samples meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the .223 REM. caliber, was found to be acceptable in all phases of the Trial and Pilot Evaluation.

REPORT TEXT:

1. VISUAL INSPECTION:

A. The visual inspection committee found no major items in the appearance of the pistols inspected.

B. The following general comments were made in overall reference to the pistols:

a. The luster of the pistols needs improvement.

b. The removing of the excess glue needs improvement.

C. The pistols used in the visual inspection were:

B7511233	B7511217	B7511204
B7511234	B7511598	B7511186

D. Comments recorded for each individual pistol are located in the appendix of this report.

2. ACCURACY:

The Remington standard for the XP-100, chambered in the .223 REM caliber is an extreme Group Size of: 3.0 inches for a five (5) shot group.

A. Eight (8) pistols were tested for 100 yard accuracy.

B7511233	B7511217	B7511204	B7511137
B7511234	B7511598	B7511186	B7511155

B. The following averages were established:

a. Group Size: 1.99 inches

b. Horizontal Spread: 1.42 inches

c. Vertical Spread: 1.51 inches

B. Accuracy results per individual pistol are located in the appendix of this report.

TEST PROCEDURE:

1. VISUAL INSPECTION:

A. The Visual Inspection Committee consisted of W. Warren, (Q.C.); R. Howe, F. Supry, and T. Douglas, (Research).

B. Six (6) of the eight (8) pistols were used for the visual inspection.

C. Each pistol was wiped down with a clean white Coyne towel, and examined by each member of the Visual Inspection Committee. All comments were recorded.

2. ACCURACY:

A. The accuracy was shot by T. Douglas, J. Ronkainen, and K. Calkins, (Research), at the R & D 100 yard range.

B. Leupold bases (standard long action) and Leupold one (1) inch rings were used, in conjunction with a Redfield 12X scope.

C. Remington ammunition, index R223R2; code U08-002301, 55 grain hollow point, was used for the 100 yard accuracy test.

E. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

F. A total of three (3), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

G. The patterns were analyzed for group size, horizontal spread, and vertical spread, using the HP 9000 computer. The averages were calculated for each pistol.

VISUAL INSPECTION:

GENERAL COMMENTS:

The pistols were found to be acceptable; however, more care should be taken during the sanding and the gluing operations.

COMMENTS PER INDIVIDUAL RIFLE:

B7511233	Glue marks: bottom of forend and left side diamond. Bright mar on trigger. Braze shows through under bolt handle. Finish varies in luster.
B7511217	Finish varies in luster. Braze shows through under bolt handle. White line spacers look dirty. Forend tip rough at barrel groove. Diamond cracked, bottom rear of pistol grip. Random glue marks.
B7511204	Random glue marks. Upper part of right grip is rough. Finish varies in luster.
B7511234	Random glue marks. Barrel grooves are rough. Mar on bolt handle. Striations do not meet with the center of the diamond.
B7511598	Several cutter marks on the inside of the receiver. Left side diamond gouged. Braze shows through under bolt handle. Random glue marks.
B7511186	Random glue marks. Mar bottom rear of bolt. Burr on bolt handle and bolt lug.

ACCURACY:

ACCURACY PER INDIVIDUAL RIFLE:

SERIAL#	GROUP SIZE (in.)	HORIZONTAL (in.)	VERTICAL (in.)
B7511155	1.49	1.49	0.76
	3.01	2.02	2.90
	2.32	1.51	1.78
AVERAGE =	2.27	1.67	1.81
B7511217	1.92	1.92	0.73
	0.97	0.45	0.97
	3.04	2.64	2.13
AVERAGE =	1.98	1.67	1.28
B7511233	2.22	2.10	1.45
	1.72	1.44	1.45
	1.44	1.37	0.67
AVERAGE =	1.79	1.64	1.19
B7511137	1.21	0.76	1.12
	1.26	0.90	1.13
	3.24	2.96	1.32
AVERAGE =	1.90	1.54	1.19
B7511598	1.44	1.44	1.00
	1.60	1.55	0.85
	1.93	1.18	1.71
AVERAGE =	1.66	1.39	1.19
B7511186	1.87	1.13	1.68
	1.85	1.80	1.50
	2.03	0.83	1.86
AVERAGE =	1.92	1.25	1.67

ACCURACY: (continued)

ACCURACY PER INDIVIDUAL RIFLE:

SERIAL#	GROUP SIZE (in.)	HORIZONTAL (in.)	VERTICAL (in.)
B7511234	1.85	0.60	1.85
	2.56	0.74	2.52
	2.26	1.42	2.02
AVERAGE =	2.22	0.92	2.13
B7511204	1.72	1.11	1.32
	2.83	1.64	2.31
	2.04	1.67	1.18
AVERAGE =	2.20	1.47	1.60

AVERAGE GROUP SPREAD WITH 5, 4 , AND 3 SHOTS

GUN NUMBER	5 SHOT GROUP (in.)	4 SHOT GROUP (in.)	3 SHOT GROUP (in.)
B7511155	2.27	1.41	1.29
B7511217	1.98	1.53	1.14
B7511233	1.79	1.28	1.00
B7511137	1.90	0.85	0.61
B7511598	1.66	1.40	1.02
B7511186	1.92	1.50	1.10
B7511234	2.22	1.66	1.26
B7511204	2.20	1.10	0.68

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. centerfire 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

Sheet 1 of 1

SPECIAL TEST REPORT

GALLERY DATA

MODEL XP100 SHOOTER R Caccia DATE 10 02 85

Gun No.	Ga./ Cal.	Heavy Jack Rds.	Heavy Jack Type	Heavy Jack Results	Light Jack Rds.	Light Jack Type	Light Jack Results
1606	223	7	55 PSP	5" Group Action OK	7	55 PLHP	2.5 Group
1966	223	7	55 PSP	5.5 Group OK	7	55 PLHP	3.5 Group
2214				5.5 OK			3.5
2507				1.5 OK			4.5
1642				4.5 OK			4.5
8065				4.5 OK			4.5
2261				5.0 OK			5.5
2476				4.5 OK			4.5
1192				5 OK			4.5
428				5.0 OK			4.0

GALLERY TARGETS DATA.

#	SHOTS	VERT	HORIZ.	SECOND
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 ALONG HOOD	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	0.8C
10	5	1.15	1.10	1.6C
11	4	0.25	0.35	0.35
12	4	0.20	0.55	0.6C
13	4	1.40	0.80	1.60
14	7 68	5.30	4.10	5.9(
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 99	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	8.
26	3	0.80	1.00	1.
27	6	4.30	1.60	4.
28	4 IIII	5.40	2.30	5.

GALLERY TARGETS DATA

A

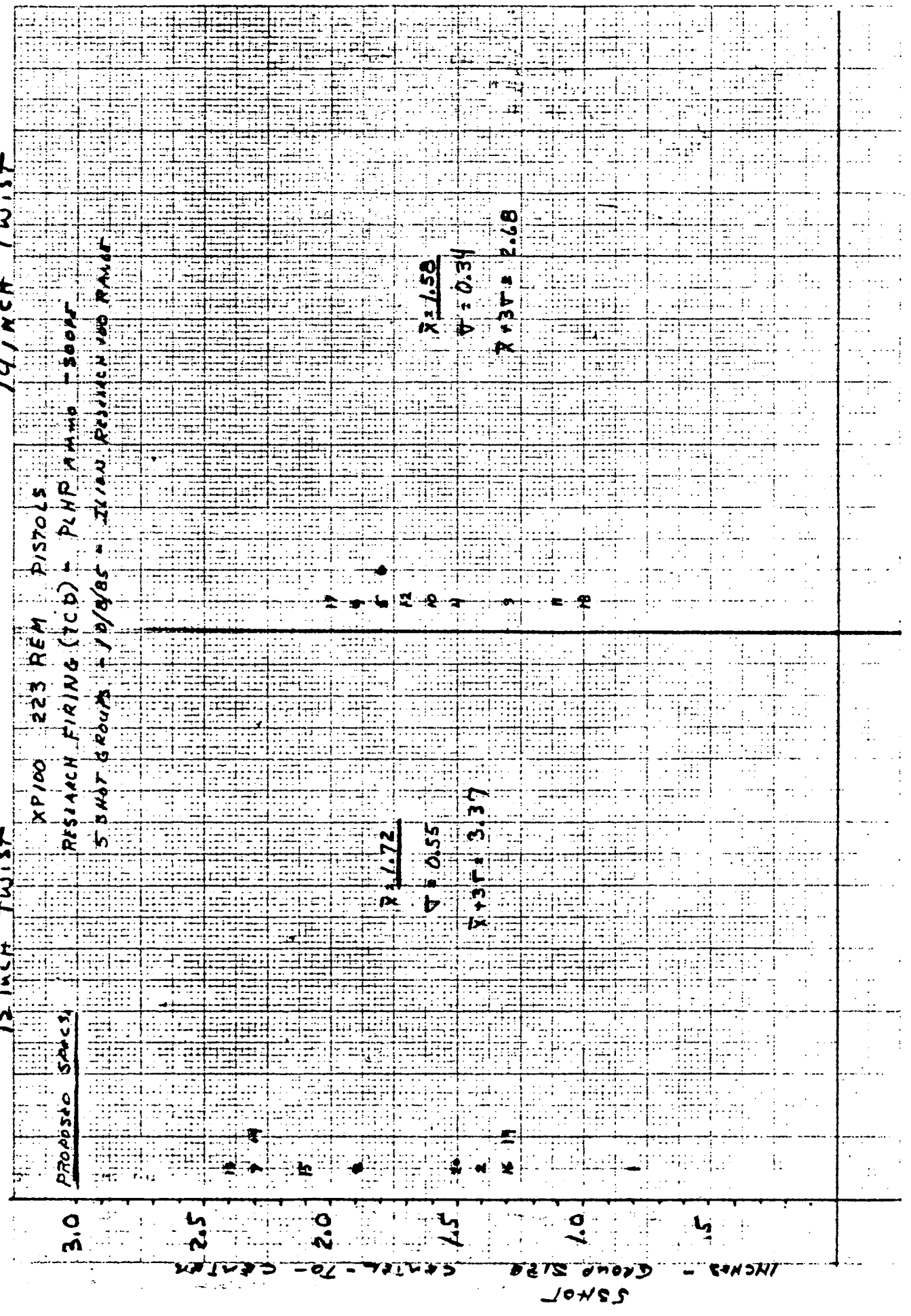
	SHOTS	VERT	HORIZ.	SPREAD
	6	2.75	3.75	4.15
30	5	4.10	1.10	4.30
31	5	5.30	1.80	5.45
32	5	1.85	1.65	2.45
33	7	2.60	1.20	2.8.
34	4 (176 gr)	1.85	2.05	2.1
	AVG.	3.29	1.76	3.75
	(140)			

TARGET ROCK ROAD
WITH 7" SCALE 10/3/85
A A HUGLICK.

111.7 37.95 127.3

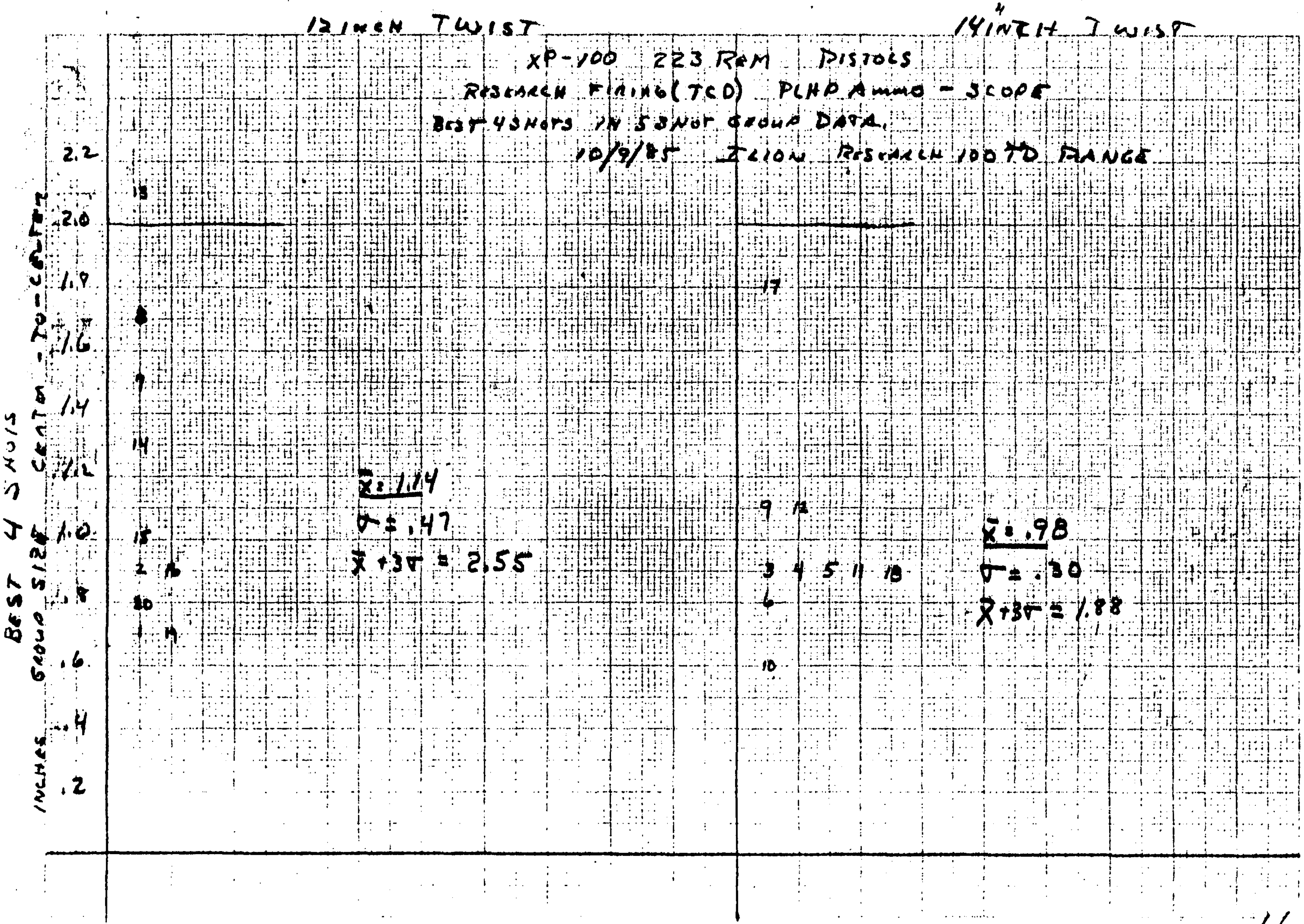
NOTE:

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

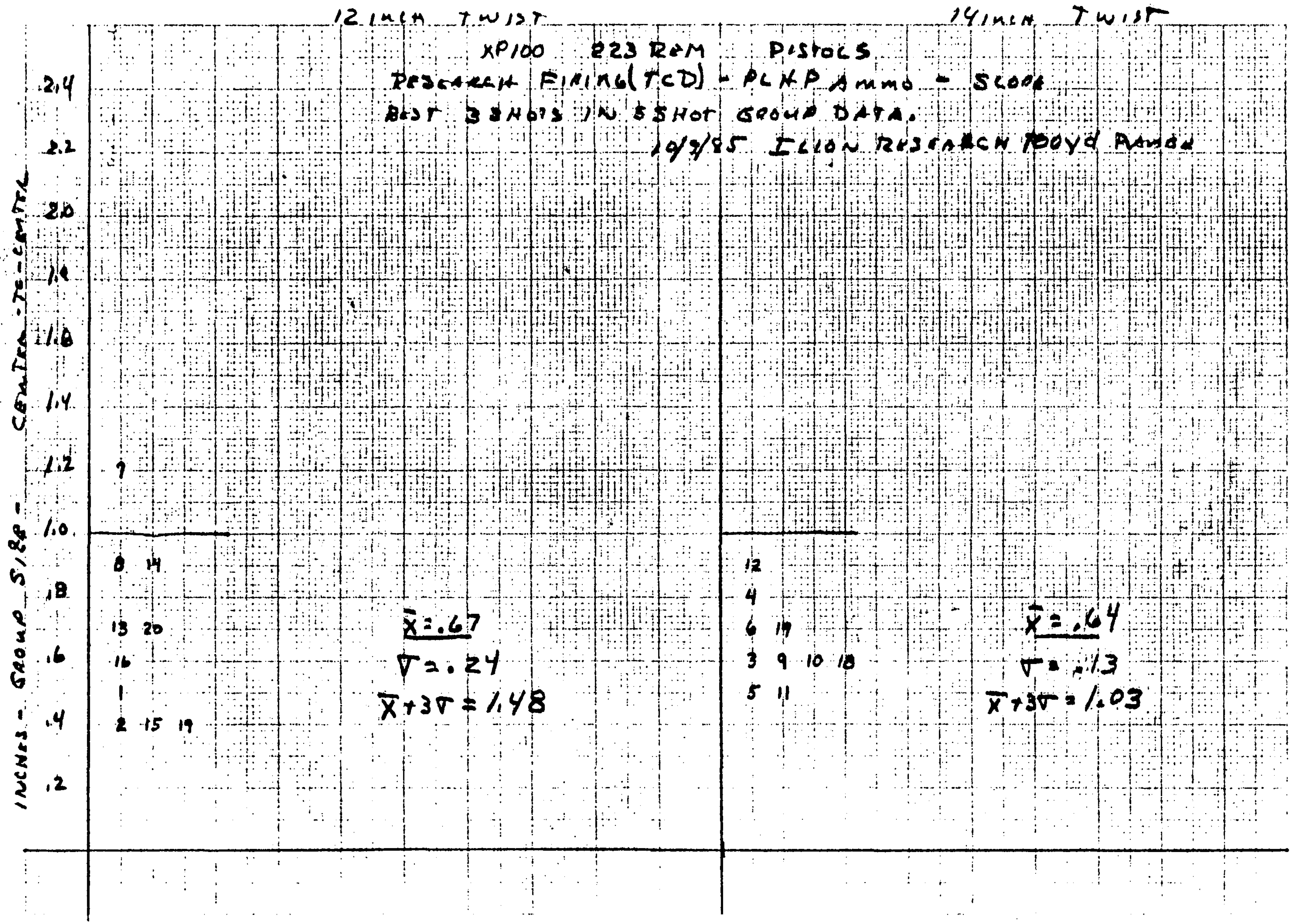

14 INCH TWIST
XP100 223 REM PISTOLS
RESEARCH FIRING (TCD) - PLHP AMMO - 300RF
5 SHOT GROUPS - 10/9/05 - IRON RESEARCH 100 RANGE
PROPOSED SPACES
12 INCH TWIST
X̄=1.72
σ=0.55
X̄+3σ=3.37
X̄=1.58
σ=0.34
X̄+3σ=2.68
3.0
2.5
2.0
1.5
1.0
.5
SHOT GROUP SIZE - CENTER-TO-CENTER INCHES

46 1323

K&E KEUFFEL & ESSER CO.

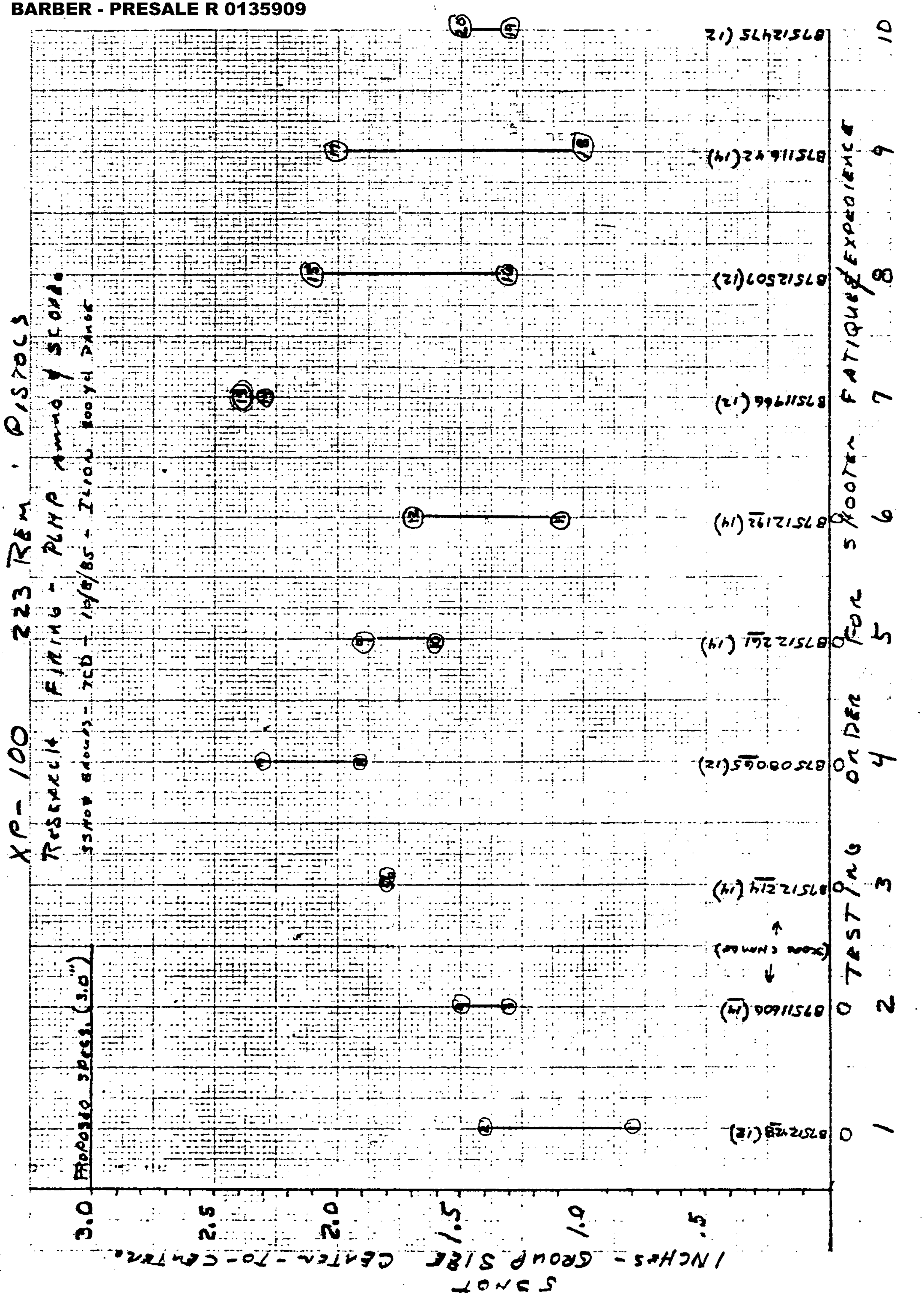


10/9/85
A.



46 1323

10/9/85 A.



Research Targets Data

GUN (14" TWIST)	5 SHOTS(P)	BEST 4 SHOTS	BEST 3 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
	σ = 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
	σ = 0.55	= 0.47	= .27
	$\bar{x}+3\sigma$ = 3.37	= 2.55	= 1.48

10/9/85 A.

RESEARCH TARGETED 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 ROUNDS 21

DATE: 10/22/85 MODEL: XP100 GAUGE: 223 SERIAL NO. B7512507

TEST TITLE: 223 XP100 ENDURANCE

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

"MALFUNCTIONS"

Ammunition Load Size	Shooter	No. of Rounds Fired	[illegible]	[illegible] Shell	Doesn't [illegible]	Doesn't [illegible] Back	Doesn't Lock Open	Feed from Mag. 1st Latch	Feed from Mag. 2nd Latch	Double Feed from Mag.	Dropped Shell	Doesn't Lock Up	Stem Chamber High	Stem Chamber Low	Stem Chamber Right	Stem Chamber Left	[illegible]	[illegible]	Loading	[illegible] Shell	Action [illegible] Up	Doesn't [illegible]	Breakage	Adjustment	Replacement	Bolt [illegible]	Remarks (on back) Yes	No
F223A	A	21																									OK	
X223R	A	100											AMMO		COOK		5	2	T	K	3	1					OK.	
R223R2	A	20															0	D	2	3	0	1						
R223R1	A	20															5	0	Z	K	2	5						
R223R3	A	20															5	0	7	K	D	1						
R223R3	A	37																										
R223R3	A	60																										
10/23/85		178		10/24/85																								
W-X223R1	A	100																										
R223R1	A	100															A	0	3	L	D							
R223R1	A	100																										
R223R1	A	100																										
TOTAL (PER MAL.)																												

578
21 = 600 TOTAL

BARBER - PRESALE R 0135912

CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER

PREVIOUS ROUNDS 600

DATE: 10/24/85 MODEL: XP100 GAUGE: 223 Rem SERIAL NO. B7512507

TEST TITLE: ENDURANCE - (JACK)

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

"MALFUNCTIONS"

Ammunition Load Size	Selector	No. of Rounds Fired	Malfunctions	Remarks (On Back) Yes	No
R223R1	A.	100	CODE - A O 3 C (660 BOLT STOP FELL OUT)		
R223R1	A.	100			
R223R1	A.	100			
R223R1	A.	100			
R223R1	A.	100			
TOTAL		100			
BLACK STOCK					
R223R1	A.	100			
TOTAL (PER MAL.)					

Oct 28, 1985
Adam A. Anzight

BARBER - PRESALE R 0135913

BARBER - PRESALE R 0135913

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	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"	19, 20	XP100 USE ADDED
LA507 INQUIRIES	12, 15	XP100 USE ADDED
" "	13, 14	[illegible], 100 V[illegible] TO TABULATION OF [illegible]

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. Hugick
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 - UPDATED 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 5.56MM

TARGET DATA

	12 IN. TWIST 7511966				14 IN. TWIST 7511642			
	223		5.56		223		5.56	
PLHD -	1.85",	1.65"	2.2",	1.6"	1.90"	1.65"	2.65",	1.56"
4 SHOTS	1.50",	1.00"	1.25",	1.0"	1.05"	1.50"	1.90",	1.25"
BEST 2 SHOTS	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"	2.22",	1.64"
BEST 4 SHOTS	1.40",	1.40"	1.20",	1.95"	1.55"	1.40"	1.85",	1.40"
BEST 3 SHOTS	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"
BEST 4 SHOTS	1.30",	1.20"	1.20",	1.65"	1.70",	1.75"	0.95"	1.90"
BEST 3 SHOTS	1.15",	0.85"	0.65"	0.95"	0.20",	0.85"	0.40"	1.35"
GRAND AVG	23.20		25.80		24.35		27.00	
5 SHOTS	9.70		12.30		11.05		11.85	
4 SHOTS	7.80		8.25		8.95		9.25	
3 SHOTS	5.70		5.25		4.35		5.90	
GRAND	~~1.29~~		~~1.43~~		~~1.35~~		~~1.50~~	
3 SHOTS	1.62		2.05		1.84		1.98	
4 SHOTS	1.30		1.38		1.49		1.54	
3 SHOTS	0.95		0.88		0.73		0.98	
5 SHOTS	0.24		0.31		0.27		0.53	
4 SHOTS	0.18		0.35		0.25		0.40	
3 SHOTS	0.28		0.14		0.29		0.38	
+3σ	2.34		2.98		2.65		3.57	
-3σ	1.64		2.43		2.24		2.74	
+σ	0.91		1.30		1.60		2.12	

OCT. 10, 85 A.

WRITER GUNS

B75 12 428 (12), B75 11 606 (14), B75 12 214 (14),
B75 08 065 (12), B75 12 261 (14), B75 12 192 (14)

ACCURACY

TWIST, CHAMBER, BULLET WEIGHTS)

B75 11 966 (12), B75 11 642 (14)

FED 40
WIN ~~55~~ 55.
GALLERY LOTS (PSP & PLHP)

(223 REM VS 5.56 GOVT) - FED 40, WIN 55, RPLHP,

ENDURANCE (STOCK)

100 RDS. FACTORY (SAUG PLHP AMMO - GOOD STUFF)

100 RDS. (EXPERIMENTAL PAINTER STOCK)

XP 100 - 223 REM DESIGN TEST

PROGRAM 8-02-85 A.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 AND TRIM LENGTH TO THAT OF 7mm BR REM BARREL BLANK.

3. DONE WITH DRAW FROM WARE HOUSE TEN XP-100 PISTOLS OR 221 CALIBER.

4. DONE HAVE BARRELS (1" CUT SHORT) REMOVED FROM RECEIVERS AND DELIVER ACTIONS TO CUSTOM SHOP.

5. DONE HAVE BARREL CHANNEL OR STOCKS RECUT 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 (PART) PROOF AND ACCURACY TEST ALL TEN PISTOLS WITH 223 REM. AMMO. (WITH THICKMAYOR BRASS (R, W, F.).

(a) ACCURACY TEST MAY BE BOTH IN GALLERY - RIFLED 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 (DEEPEN THROAT) TO THAT OF 5.56.

BOSNOOT ACCURACY OF ALTERED GUN AND ONE CONTROL GUN.

FINAL 12R 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 FORGIVING THAN A (12) INCH TWIST BARREL. THE DEEPER THROATED 5.56 IS EXPECTED TO BE MORE FORGIVING THAN A LESSER THROATED 223 Rem. CHAMBER. IF SIGNIFICANT INDICATIONS OR ONE GUN WILL INDICATE IF A LARGER SAMPLE IS REQUIRED FOR VARIFICATION 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 ALLOWS.

XT 100 ACCURRACY DATA .223 CAL 10/9/85 RCD

14 IN

GUN	HS	VS	GS
192	.960	.878	1.093
192	1.656	.757	1.695
261	1.728	.760	1.889
261	1.250	1.078	1.628
214	1.738	.990	1.792
214	1.505	1.261	1.829
606	1.258	.777	1.318
606	1.011	1.174	1.512
642	1.838	1.313	2.024
642	.851	.991	1.014

AVE 1.5794

12 IN

GUN	HS	VS	GS
428	.774	.446	.798
428	1.302	.651	1.397
065	2.071	1.378	2.322
065	1.901	1.117	1.915
966	1.592	2.422	2.428
966	1.017	2.251	2.251
507	.615	2.078	2.105
507	1.251	.404	1.251
475	1.282	.456	1.314
475	.892	1.166	1.468

AVE 1.7249

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington / PETERS

Distribution: C. B. Workman
C. E. Ritchie

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

RESEARCH TEST and MEASUREMENT REPORT – Report No. 832091

PRODUCTION MODEL XP-100 – 7MM BR – 1000 ROUND ENDURANCE TEST

Prepared by: R. W. Howe

Date Prepared: August 18, 1983

Proofread and Cleared By:

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

R E Nightingale
Signature Date

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

C E Ritchie 8/24/83
Signature Date

XP-100
223 Rem
860972

T&P Evaluation
Measurements - Accuracy

Report to Sned for proofreading 4/21/86

BARBER - PRESALE R 0135922

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington PETERS

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

cc: W.H. Coleman, II/File
J.W. Bower
J.G. Hill
J.R. Snedeker
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 860972

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

ABSTRACT:

Research and Development finds the Trial and Pilot Evaluation of the Model XP-100 .223 REM caliber to be acceptable. However, the following should be investigated, by production:

1. During the Visual inspection all of the pistols were found to have some random spots of glue, and the stock luster was mismatched. More care needs to be taken during the assembly of the stocks.

Prepared by: F.L. SUPKY
Date Prepared: 4/18/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab _____

W.H. COLEMAN, II
New Products Research Lab Director _____

REF.#860972 W.O.# 925C0805

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

On April 07, 1986 a request to conduct a Trial and Pilot Evaluation on the Model XP-100 .223 REM. caliber pistol was received by the Test Lab. The evaluation would use eight guns, withdrawn from the warehouse, and consist of Visual Inspection, and 100 Yard Accuracy.

SCOPE OF TEST:

To determine if the production run samples meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the .223 REM. caliber, was found to be acceptable in all phases of the Trial and Pilot Evaluation.

REPORT TEXT:

1. VISUAL INSPECTION:

A. The visual inspection committee found no major items in the appearance of the pistols inspected.

B. The following general comments were made in overall reference to the pistols:

a. The luster of the pistols needs improvement.

b. The removing of the excess glue needs improvement.

C. The pistols used in the visual inspection were:

B7511233	B7511217	B7511204
B7511234	B7511598	B7511186

D. Comments recorded for each individual pistol are located in the appendix of this report.

2. ACCURACY:

A. Eight (8) pistols were tested for 100 yard accuracy.

B7511233	B7511217	B7511204	B7511137
B7511234	B7511598	B7511186	B7511155

B. The following averages were established:

a. Group Size: 1.99 inches

b. Horizontal Spread: 1.42 inches

c. Vertical Spread: 1.51 inches

B. Accuracy results per individual pistol are located in the appendix of this report.

TEST PROCEDURE:

1. VISUAL INSPECTION:

A. The Visual Inspection Committee consisted of W. Warren, (Q.C.); R. Howe, F. Supry, and T. Douglas, (Research).

B. Six (6) of the eight (8) pistols were used for the visual inspection.

C. Each pistol was wiped down with a clean white Coyne towel, and examined by each member of the Visual Inspection Committee. All comments were recorded.

D. Following the visual inspection, headspace and trigger pull measurements were taken on all eight pistols.

2. ACCURACY:

A. The accuracy was shot by T. Douglas, J. Ronkainen, and K. Calkins, (Research), at the R & D 100 yard range.

B. Leupold bases (standard long action) and Leupold one (1) inch rings were used, in conjunction with a Redfield 12X scope.

C. Remington ammunition, index R223R2; code U08-002301, 55 grain hollow point, was used for the 100 yard accuracy test.

E. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

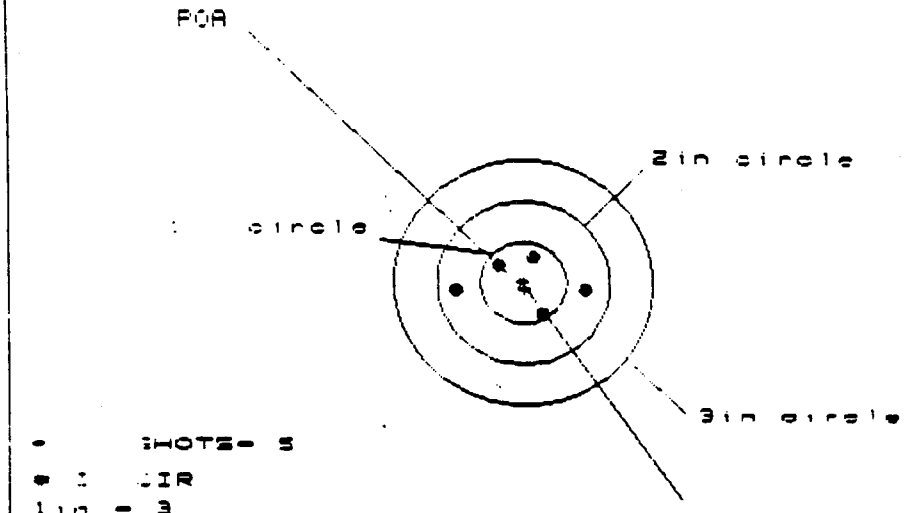
F. A total of three (3), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

G. The patterns were analyzed for group size, horizontal spread, and vertical spread, using the HP 9000 computer. The averages were calculated for each pistol.

GROUP 1

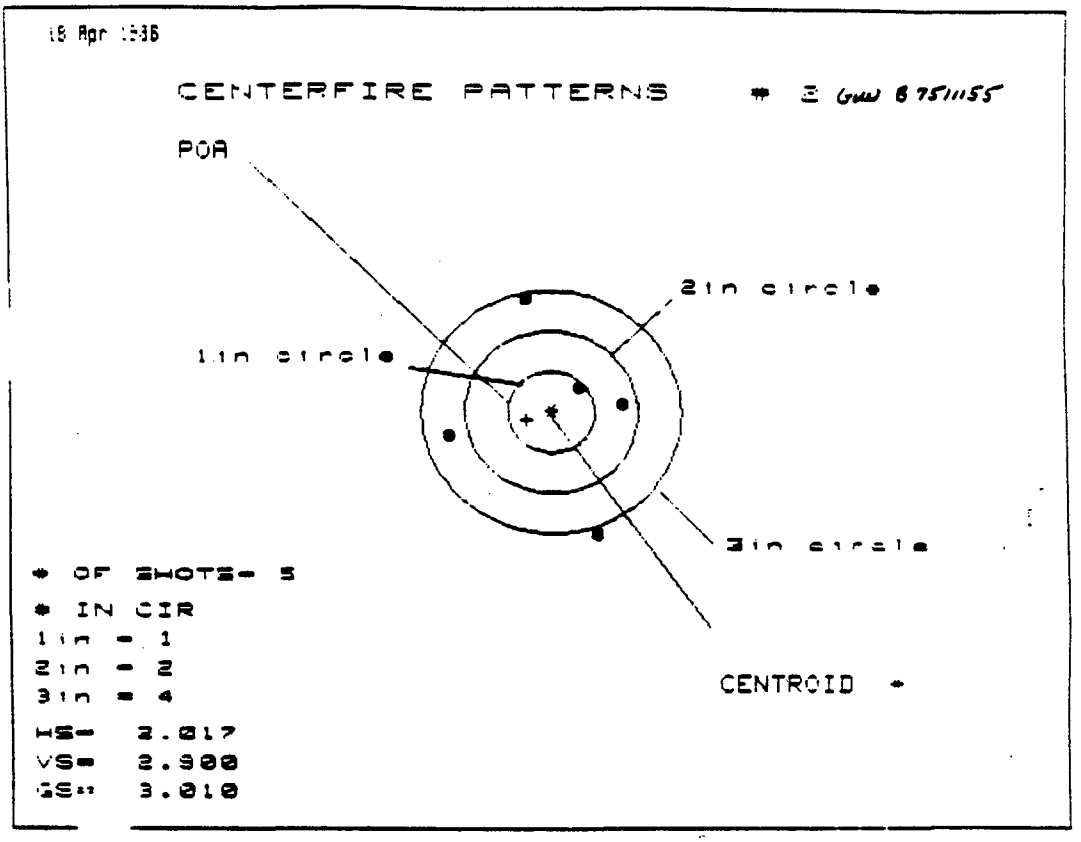
16 Apr 1986

CENTERFIRE PATTERNS * 1 GUN # 751155

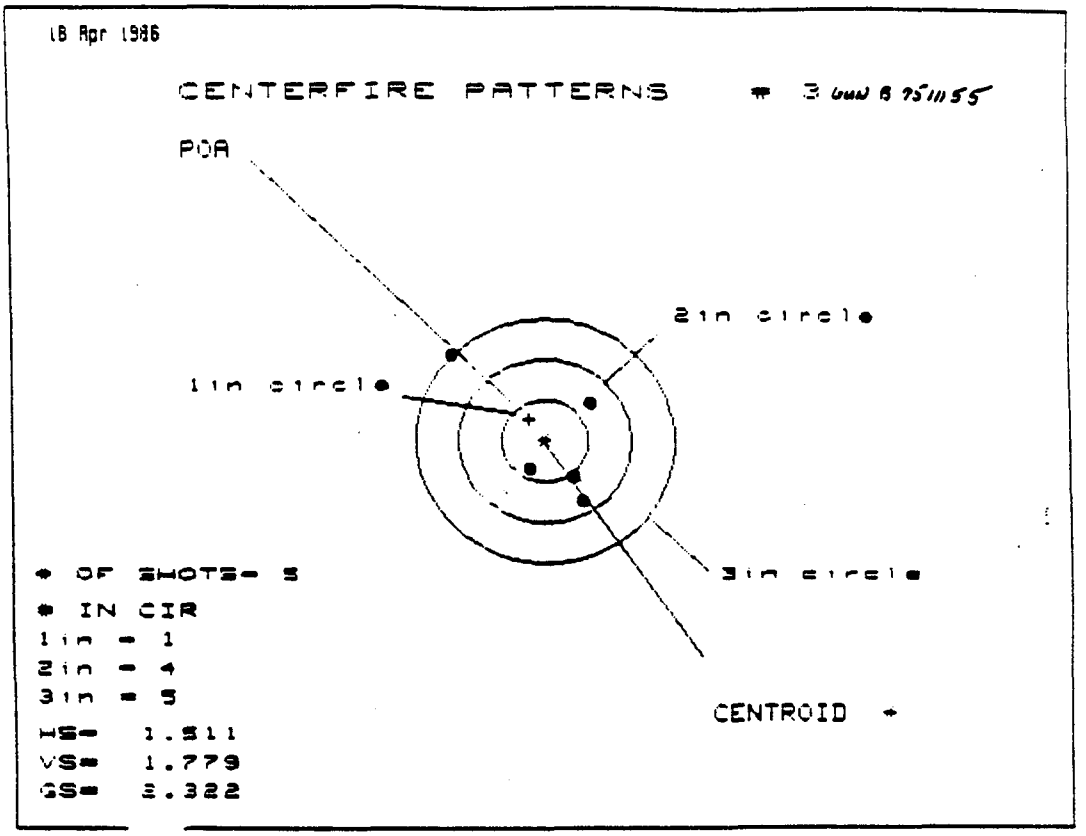


- SHOTS= 5
- DIR
1in = 3
2in = 5
3in = 5
HS= 1.488
VS= .763
ES= 1.490

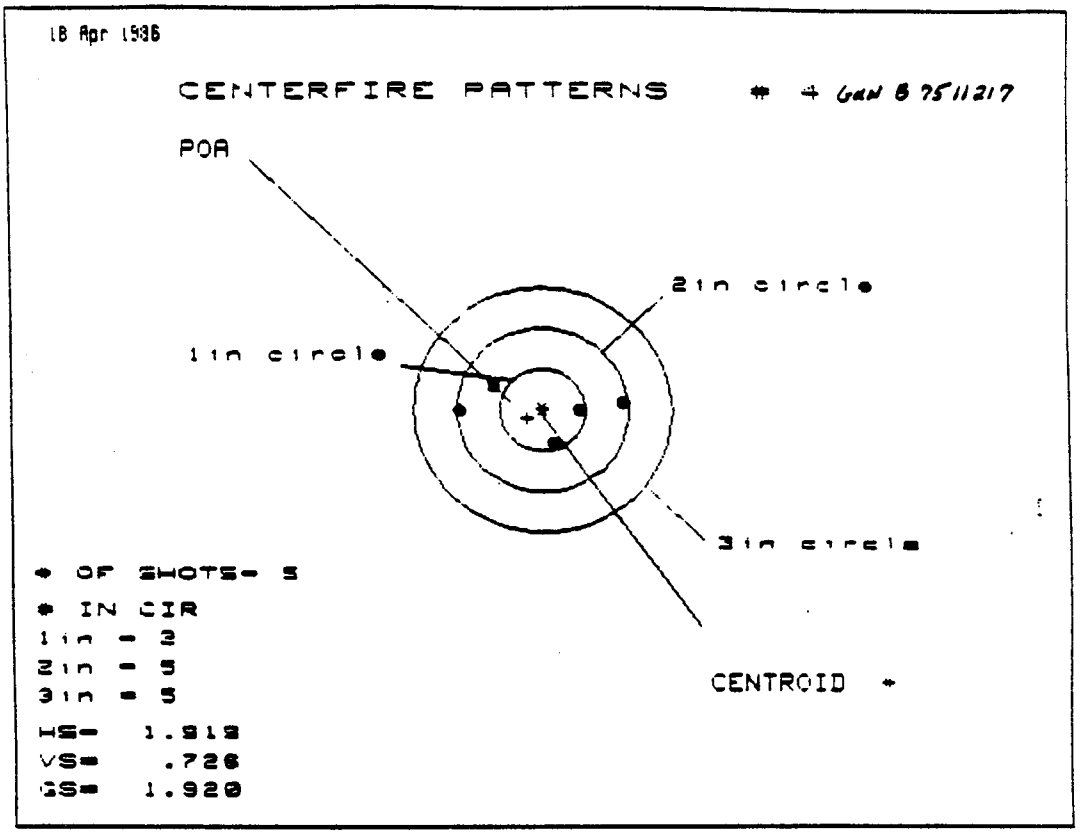
PATTERN #		5	4	3
(in. BEST OF)				
MAXIMUM X	:	.693	.494	.216
MINIMUM X	:	-.795	-.498	-.333
MAXIMUM Y	:	.360	.352	.313
MINIMUM Y	:	-.403	-.411	-.450
CENTROID X	:	-.011	.188	.023
CENTROID Y	:	.081	.089	.128
POA TO CENTROID in.	:	.081	.208	.130
MIN RADIUS	:	.352	.355	.334
MEAN RADIUS	:	.543	.451	.398
MAX RADIUS	:	.796	.528	.499
HORIZONTAL SPREAD	:	1.488	.992	.549
VERTICAL SPREAD	:	.763	.763	.763
EXTREME SPREAD	:	1.490	1.035	.804
NUMBER IN ONE INCH CIRCLE		*	3	
NUMBER IN TWO INCH CIRCLE			*	
NUMBER IN THREE INCH CIRCLE				



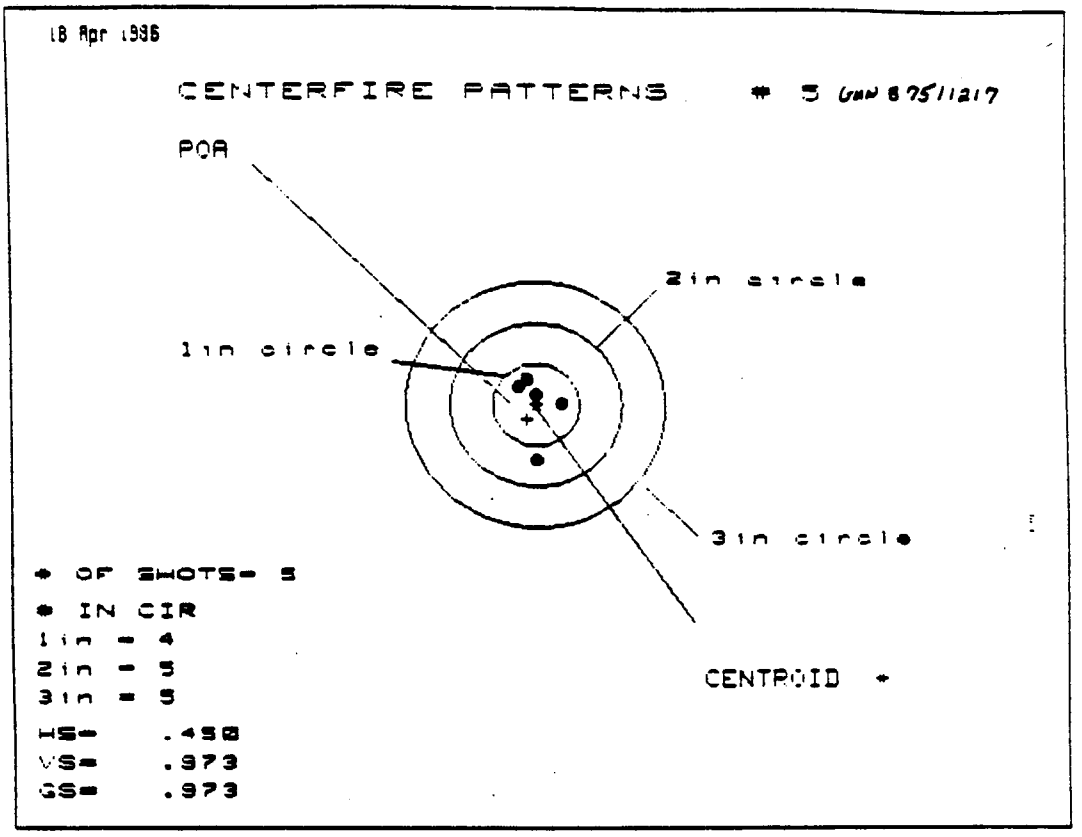
PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.797	.918	.850
MINIMUM X	:	-1.220	-1.100	-1.167
MAXIMUM Y	:	1.400	1.024	.243
MINIMUM Y	:	-1.500	-.638	-.289
CENTROID X	:	.287	.167	.234
CENTROID Y	:	.096	.471	.130
POA TO CENTROID in.	:	.303	.500	.267
MIN RADIUS	:	.382	.396	.399
MEAN RADIUS	:	1.088	.918	.817
MAX RADIUS	:	1.576	1.267	1.202
HORIZONTAL SPREAD	:	2.017	2.017	2.017
VERTICAL SPREAD	:	2.900	1.655	.532
EXTREME SPREAD	:	3.010	2.045	2.045
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		2	
NUMBER IN THREE INCH CIRCLE	=		4	



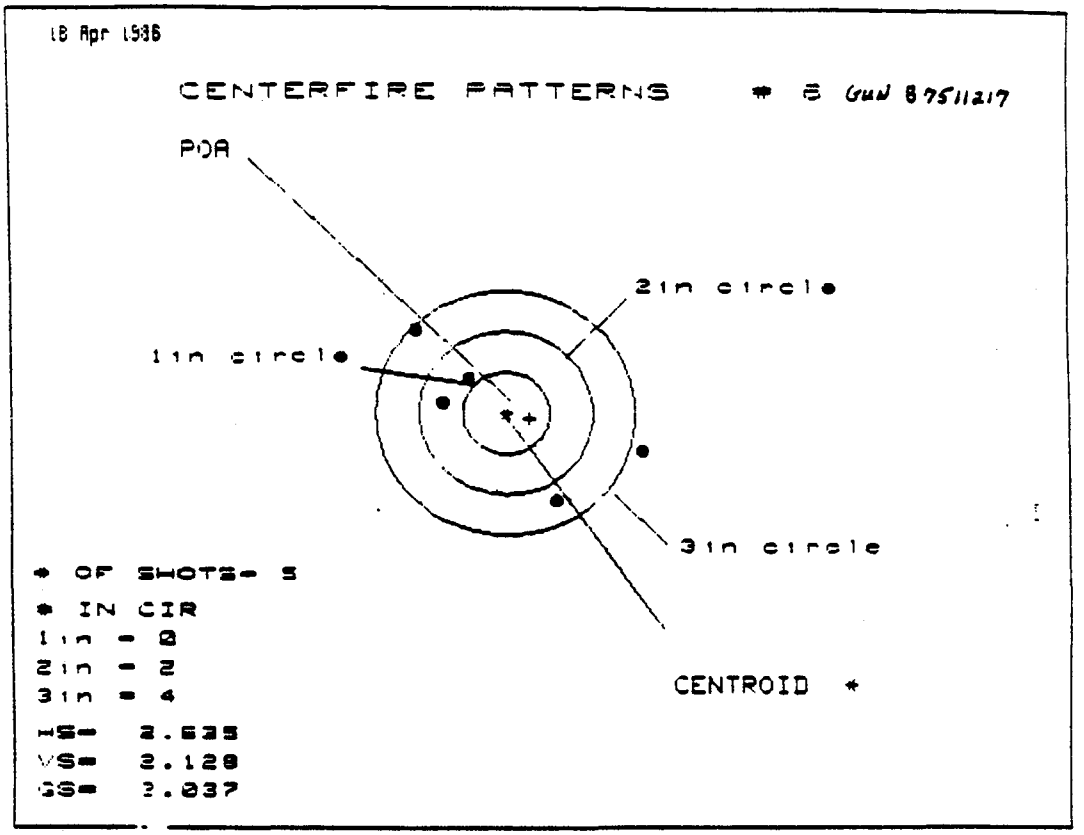
PATTERN #	:	■		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.474	.214	.279
MINIMUM X	:	-1.037	-.419	-.354
MAXIMUM Y	:	1.073	.787	.561
MINIMUM Y	:	-.706	-.438	-.338
CENTROID X	:	.182	.442	.377
CENTROID Y	:	-.268	-.536	-.390
POA TO CENTROID in.	:	.324	.695	.542
MIN RADIUS	:	.381	.192	.346
MEAN RADIUS	:	.778	.459	.464
MAX RADIUS	:	1.492	.739	.627
HORIZONTAL SPREAD	:	1.511	.633	.633
VERTICAL SPREAD	:	1.779	1.145	.899
EXTREME SPREAD	:	2.322	1.145	1.008
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	



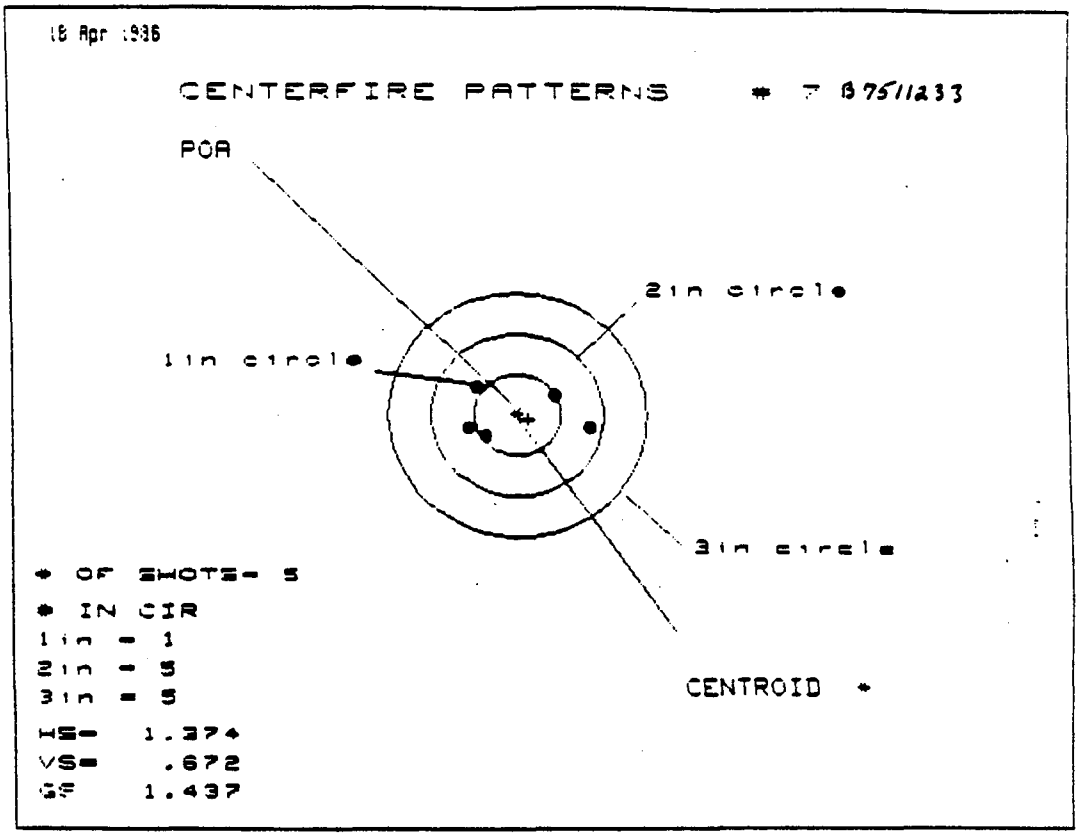
PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.959	.652	.412
MINIMUM X	:	-.960	-.720	-.579
MAXIMUM Y	:	.308	.332	.356
MINIMUM Y	:	-.418	-.394	-.370
CENTROID X	:	.177	-.063	.177
CENTROID Y	:	.099	.075	.051
POA TO CENTROID in.	:	.203	.090	.184
MIN RADIUS	:	.414	.475	.406
MEAN RADIUS	:	.689	.684	.499
MAX RADIUS	:	.964	.724	.680
HORIZONTAL SPREAD	:	1.919	1.372	.991
VERTICAL SPREAD	:	.726	.726	.726
EXTREME SPREAD	:	1.920	1.374	1.048
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	



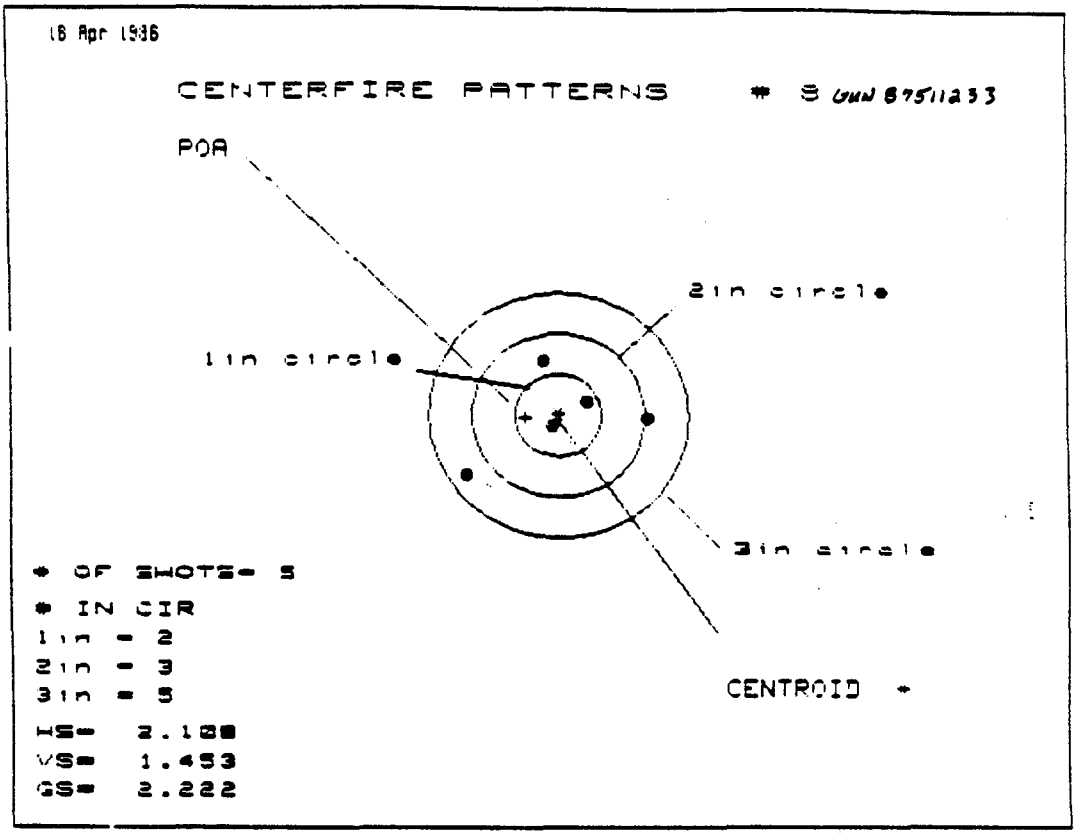
PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.288	.278	.253
MINIMUM X	:	-.162	-.173	-.197
MAXIMUM Y	:	.317	.153	.124
MINIMUM Y	:	-.656	-.165	-.115
CENTROID X	:	.107	.118	.142
CENTROID Y	:	.174	.338	.288
POA TO CENTROID in.	:	.205	.358	.321
MIN RADIUS	:	.106	.069	.057
MEAN RADIUS	:	.332	.187	.189
MAX RADIUS	:	.658	.323	.278
HORIZONTAL SPREAD	:	.458	.458	.458
VERTICAL SPREAD	:	.973	.318	.239
EXTREME SPREAD	:	.973	.518	.518
NUMBER IN ONE INCH CIRCLE	=		4	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.592	1.011	.796
MINIMUM X	:	-1.043	-.645	-.556
MAXIMUM Y	:	1.016	.892	.621
MINIMUM Y	:	-1.112	-1.236	-.938
CENTROID X	:	-.266	-.663	-.448
CENTROID Y	:	.069	.193	-.105
POA TO CENTROID in.	:	.274	.691	.460
MIN RADIUS	:	.616	.324	.640
MEAN RADIUS	:	1.152	.841	.845
MAX RADIUS	:	1.667	1.597	1.231
HORIZONTAL SPREAD	:	2.635	1.657	1.352
VERTICAL SPREAD	:	2.128	2.128	1.559
EXTREME SPREAD	:	3.037	2.697	1.872
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		2	
NUMBER IN THREE INCH CIRCLE	=		4	

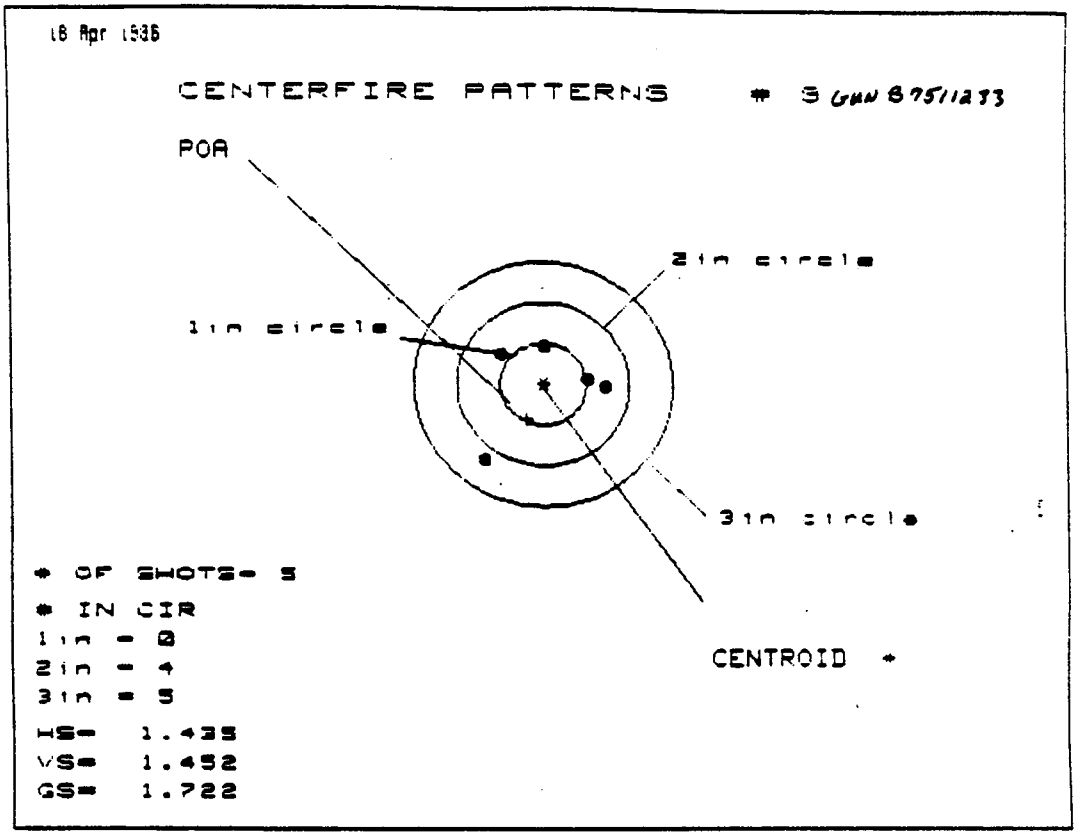


PATTERN #	:			
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.851	.690	.602
MINIMUM X	:	-.523	-.310	-.398
MAXIMUM Y	:	.378	.335	.317
MINIMUM Y	:	-.294	-.338	-.226
CENTROID X	:	-.128	-.341	-.253
CENTROID Y	:	.055	.099	-.013
POA TO CENTROID in.	:	.139	.355	.254
MIN RADIUS	:	.442	.357	.305
MEAN RADIUS	:	.601	.468	.465
MAX RADIUS	:	.869	.720	.601
HORIZONTAL SPREAD	:	1.374	1.000	1.000
VERTICAL SPREAD	:	.672	.672	.543
EXTREME SPREAD	:	1.437	1.000	1.000
NUMBER IN ONE INCH CIR.			1	
NUMBER IN TWO INCH CIRCLE			5	
NUMBER IN THREE INCH CIRCLE			5	

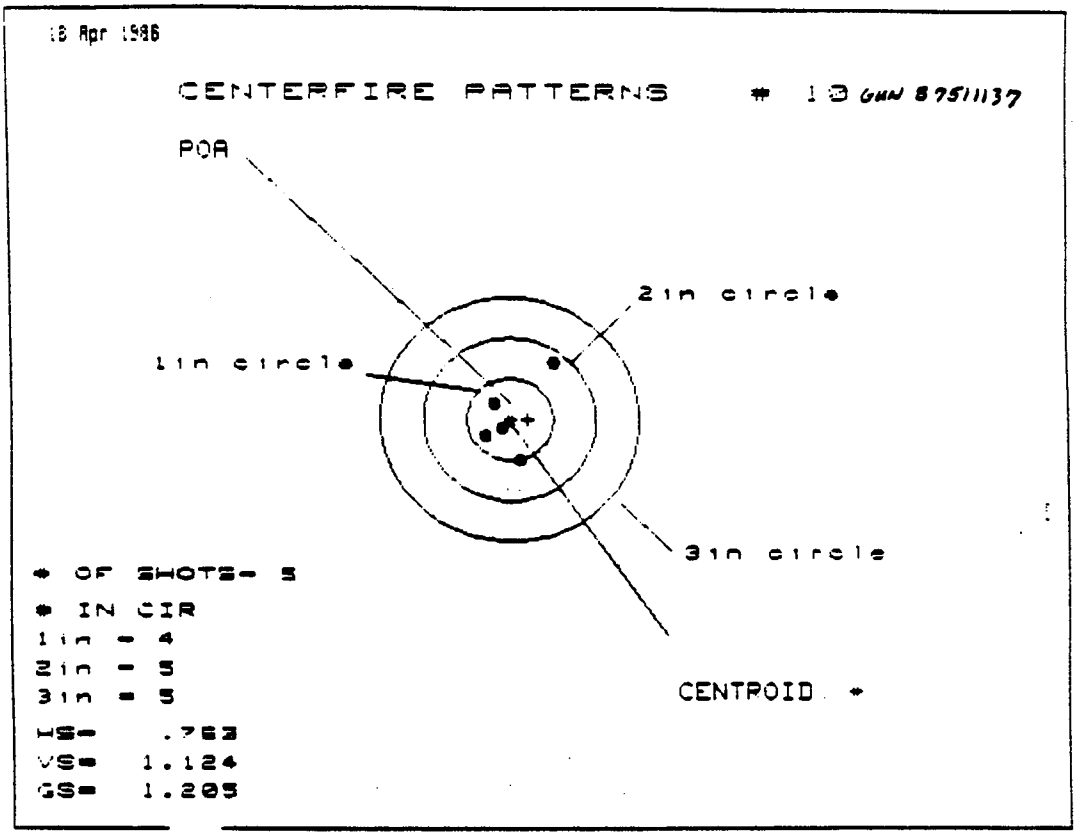


PATTERN # : [redacted]

SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.052	.787	.337
MINIMUM X	:	-1.056	-.488	-.226
MAXIMUM Y	:	.696	.506	.425
MINIMUM Y	:	-.757	-.268	-.350
CENTROID X	:	.376	.640	.378
CENTROID Y	:	.028	.217	.299
POA TO CENTROID in.	:	.377	.676	.482
MIN RADIUS	:	.135	.075	.345
MEAN RADIUS	:	.722	.516	.398
MAX RADIUS	:	1.300	.824	.482
HORIZONTAL SPREAD	:	2.108	1.276	.563
VERTICAL SPREAD	:	1.453	.775	.775
EXTREME SPREAD	:	2.222	1.480	.783
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	

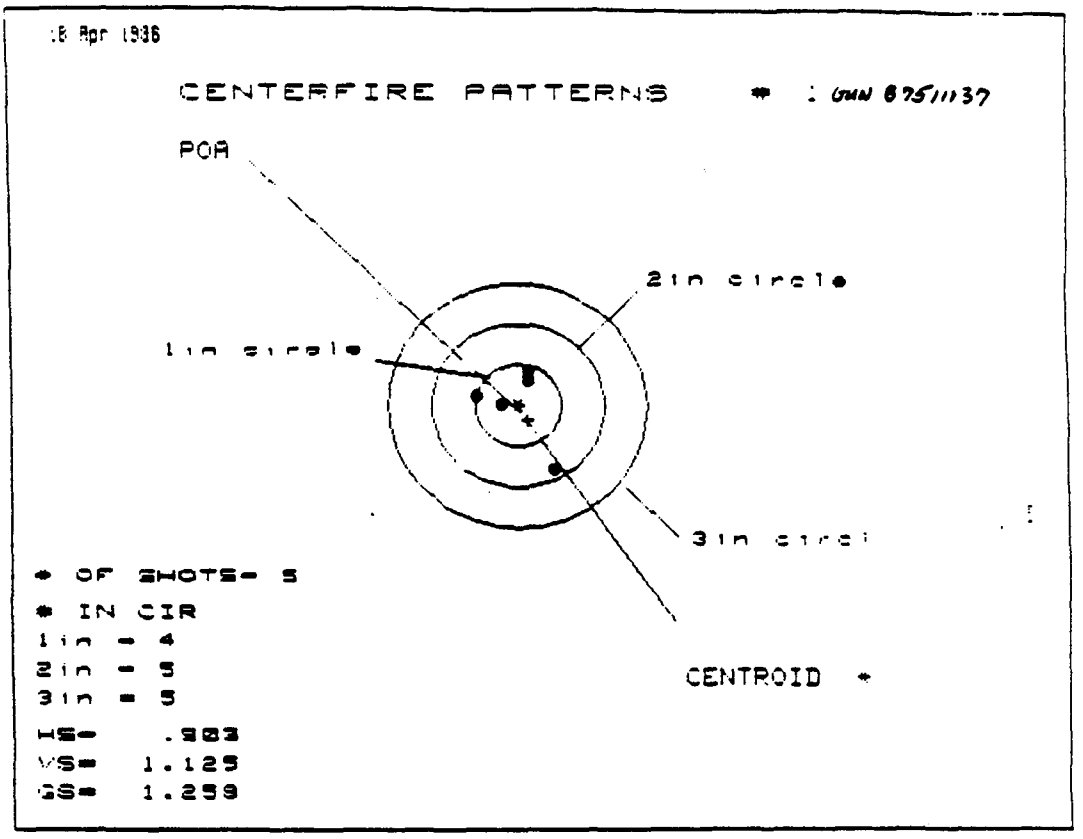


PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.788	.517	.537
MINIMUM X	:	-.735	-.696	-.524
MAXIMUM Y	:	.505	.268	.191
MINIMUM Y	:	-.947	-.232	-.292
CENTROID X	:	.192	.375	.203
CENTROID Y	:	.430	.667	.744
POA TO CENTROID in.	:	.471	.765	.771
MIN RADIUS	:	.505	.326	.191
MEAN RADIUS	:	.722	.509	.445
MAX RADIUS	:	1.199	.719	.611
HORIZONTAL SPREAD	:	1.435	1.213	1.061
VERTICAL SPREAD	:	1.452	.588	.483
EXTREME SPREAD	:	1.722	1.288	1.131
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

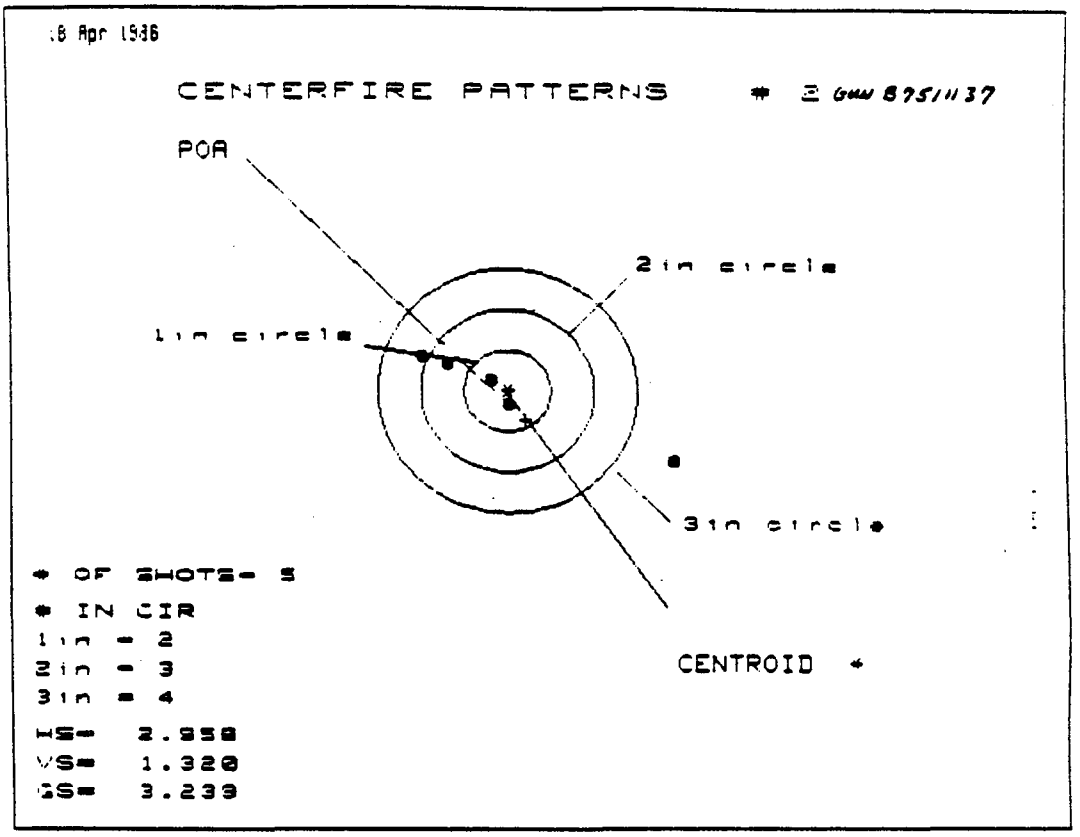


PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.499	.191	.093
MINIMUM X	:	-.264	-.139	-.076
MAXIMUM Y	:	.656	.359	.258
MINIMUM Y	:	-.468	-.304	-.180
CENTROID X	:	-.206	-.331	-.394
CENTROID Y	:	0.000	-.164	-.063
POA TO CENTROID in.	:	.206	.369	.399
MIN RADIUS	:	.169	.038	.121
MEAN RADIUS	:	.422	.231	.192
MAX RADIUS	:	.824	.368	.258
HORIZONTAL SPREAD	:	.763	.330	.169
VERTICAL SPREAD	:	1.124	.663	.438
EXTREME SPREAD	:	1.205	.717	.442
NUMBER IN ONE INCH CIRCLE	=		4	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE			5	

Group 2

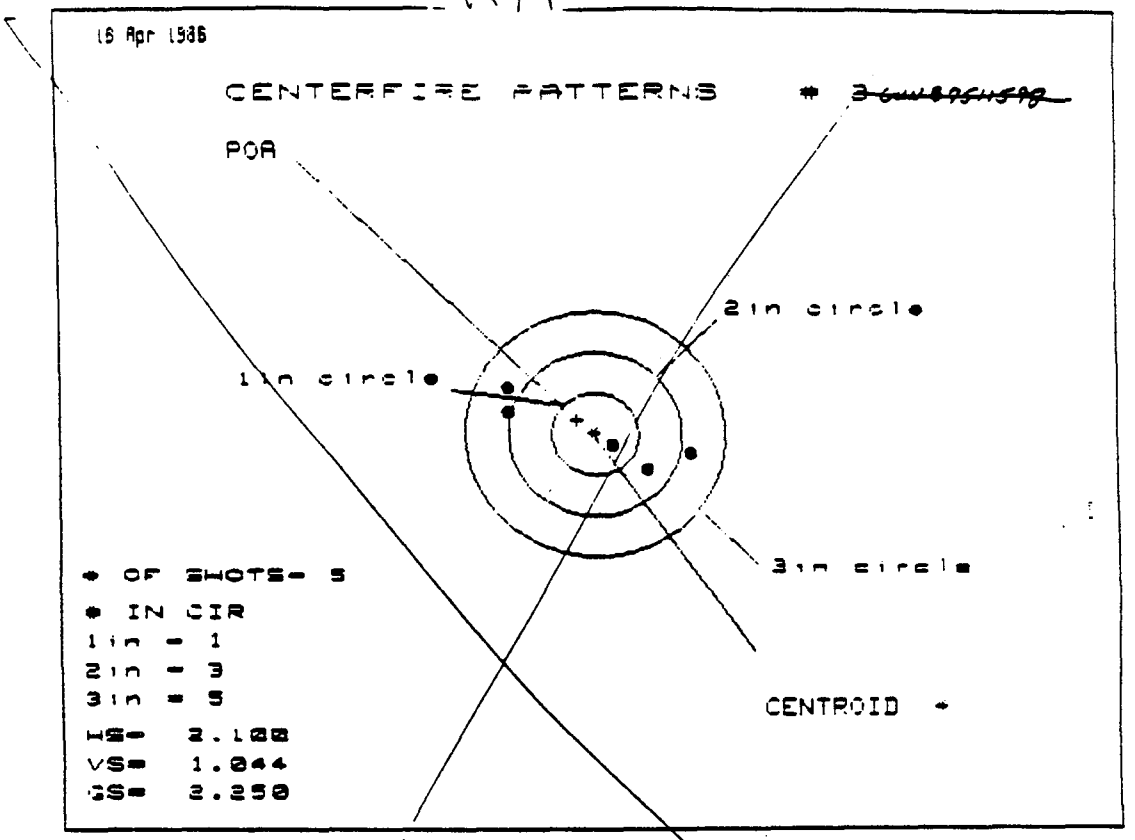


PATTERN #	:			
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.439	.256	.138
MINIMUM X	:	-.464	-.354	-.247
MAXIMUM Y	:	.369	.188	.156
MINIMUM Y	:	-.756	-.190	-.213
CENTROID X	:	-.189	-.219	-.101
CENTROID Y	:	.182	.371	.395
POA TO CENTROID in.	:	.213	.431	.407
MIN RADIUS	:	.239	.229	.122
MEAN RADIUS	:	.456	.286	.219
MAX RADIUS	:	.875	.361	.326
HORIZONTAL SPREAD	:	.983	.610	.385
VERTICAL SPREAD	:	1.125	.369	.369
EXTREME SPREAD	:	1.258	.659	.533
NUMBER IN ONE INCH CIRCLE	=		4	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		-	

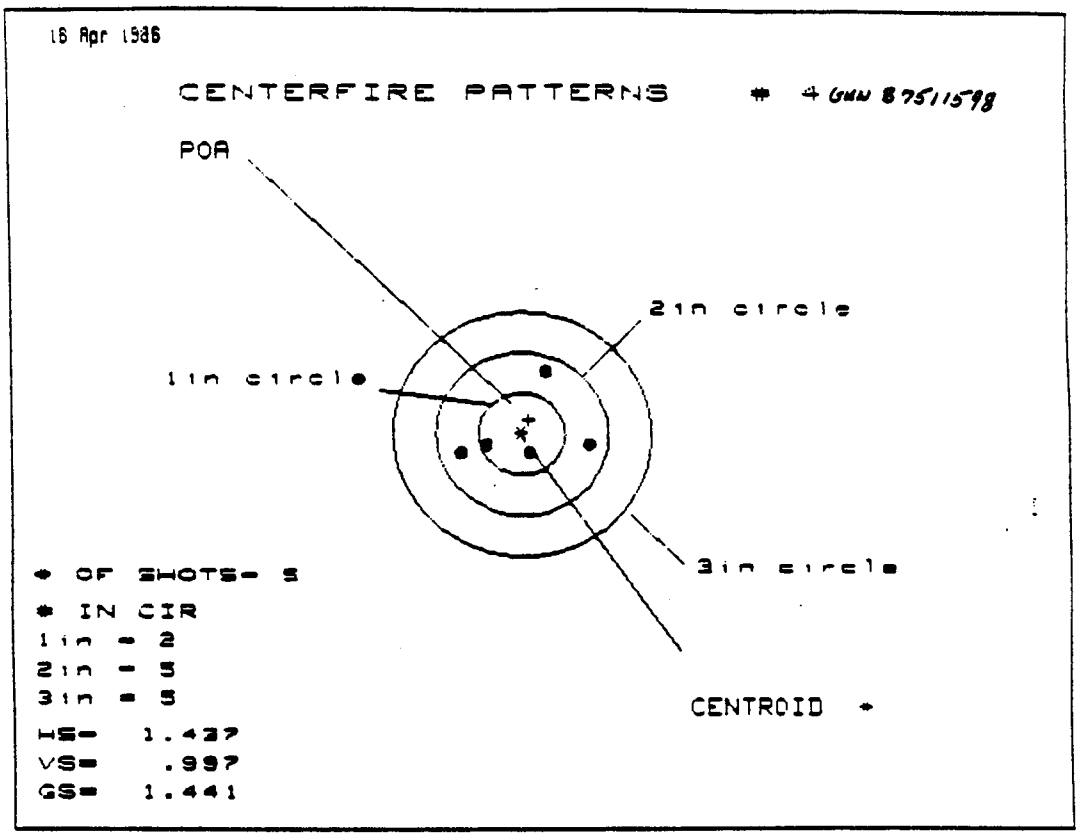


PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.939	.468	.282
MINIMUM X	:	-1.819	-.534	-.384
MAXIMUM Y	:	.481	.271	.246
MINIMUM Y	:	-.839	-.363	-.273
CENTROID X	:	-.286	-.691	-.513
CENTROID Y	:	.362	.572	.482
POA TO CENTROID in.	:	.417	.897	.704
MIN RADIUS	:	.155	.258	.185
MEAN RADIUS	:	.886	.433	.318
MAX RADIUS	:	2.113	.599	.456
HORIZONTAL SPREAD	:	2.958	.994	.666
VERTICAL SPREAD	:	1.320	.634	.519
EXTREME SPREAD	:	3.239	1.179	.844
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		4	

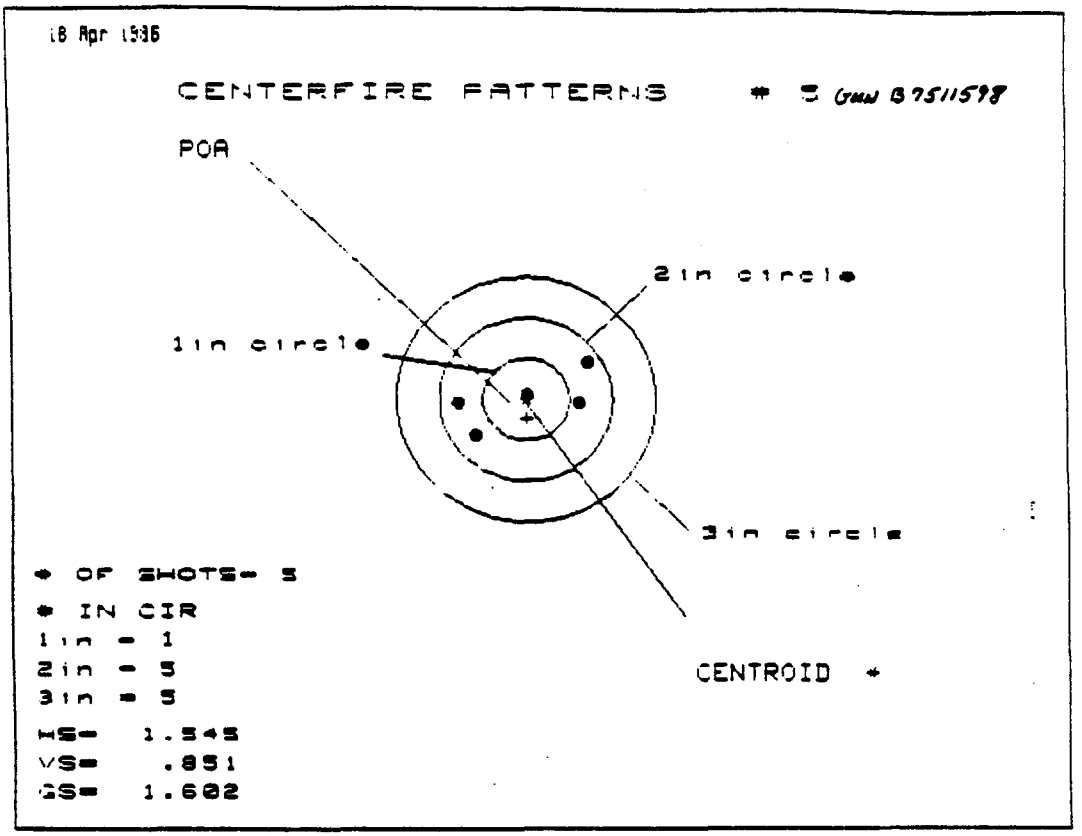
SKIP



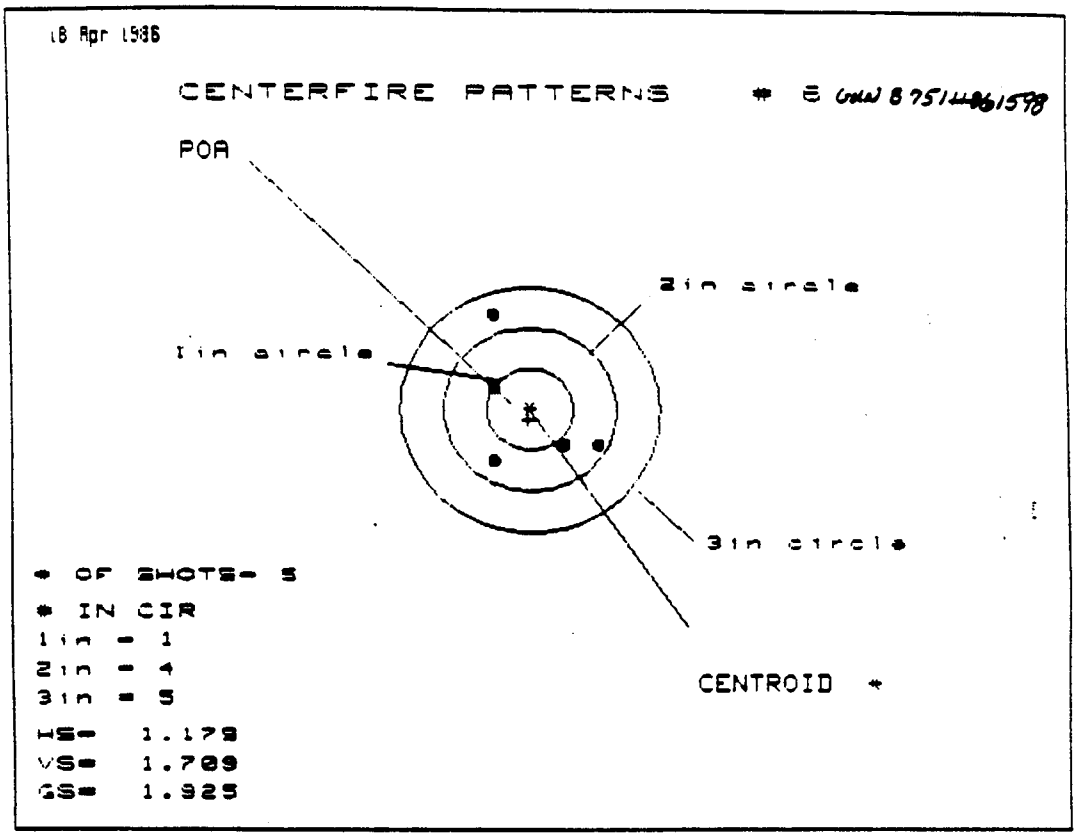
PATTERN #				
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.115	.869	.652
MINIMUM X	:	-.985	-1.208	-.913
MAXIMUM Y	:	.585	.489	.384
MINIMUM Y	:	-.459	-.312	-.337
CENTROID X	:	.211	.457	.168
CENTROID Y	:	-.175	-.322	-.297
POA TO CENTROID in.	:	.275	.559	.341
MIN RAD	:	.279	.832	.270
MEAN RADIUS	:	.864	.664	.666
MAX RADIUS	:	1.146	1.275	.995
HORIZONTAL SPREAD	:	2.100	2.076	1.570
VERTICAL SPREAD	:	1.044	.721	.721
EXTREME SPREAD	:	2.250	2.132	1.728
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	



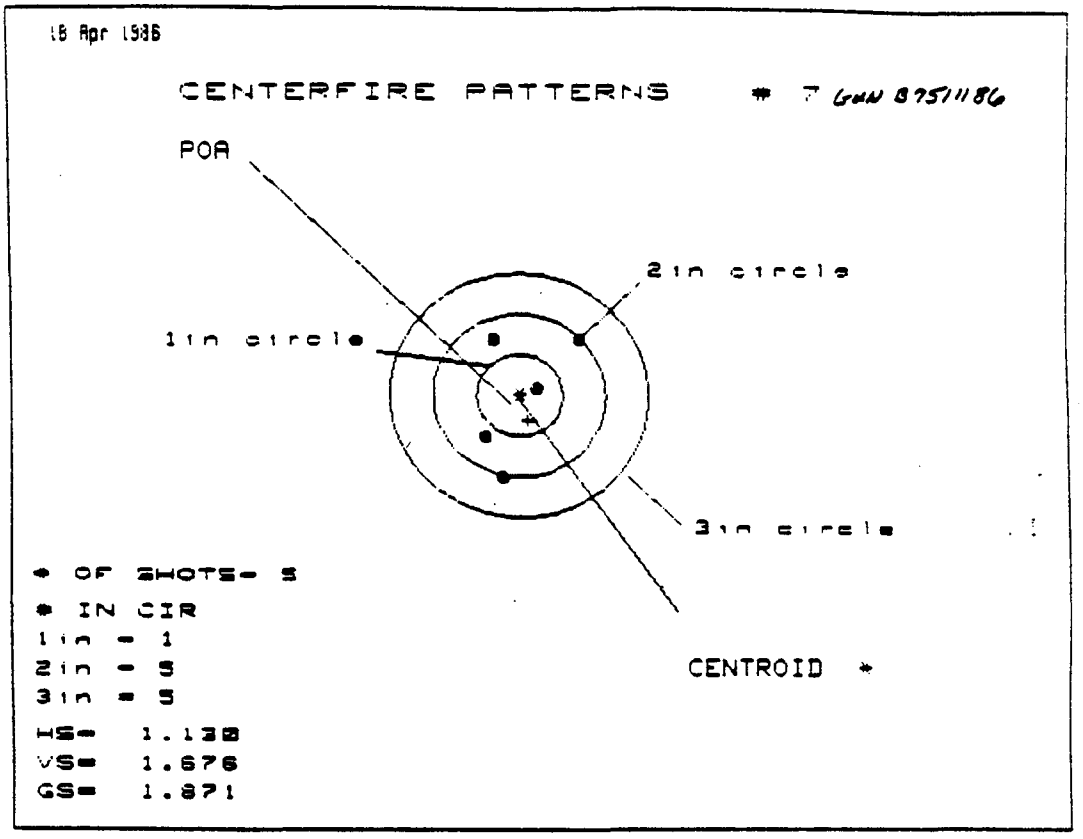
PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.733	.797	.453
MINIMUM X	:	-.704	-.640	-.374
MAXIMUM Y	:	.731	.090	.044
MINIMUM Y	:	-.266	-.883	-.853
CENTROID X	:	-.079	-.143	-.409
CENTROID Y	:	-.174	-.357	-.387
POA TO CENTROID in.	:	.191	.385	.563
MIN RADIUS	:	.293	.205	.090
MEAN RADIUS	:	.596	.498	.387
MAX RADIUS	:	.774	.802	.456
HORIZONTAL SPREAD	:	1.437	1.437	.927
VERTICAL SPREAD	:	.997	.173	.897
EXTREME SPREAD	:	1.441	1.441	.829
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.742	.791	.585
MINIMUM X	:	-.803	-.618	-.576
MAXIMUM Y	:	.422	.159	.194
MINIMUM Y	:	-.429	-.323	-.288
CENTROID X	:	-.807	-.192	.014
CENTROID Y	:	.237	.131	.096
POA TO CENTROID in.	:	.237	.233	.097
MIN RADIUS	:	.854	.253	.194
MEAN RADIUS	:	.604	.541	.477
MAX RADIUS	:	.853	.793	.644
HORIZONTAL SPREAD	:	1.545	1.409	1.161
VERTICAL SPREAD	:	.851	.492	.482
EXTREME SPREAD	:	1.602	1.410	1.222
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

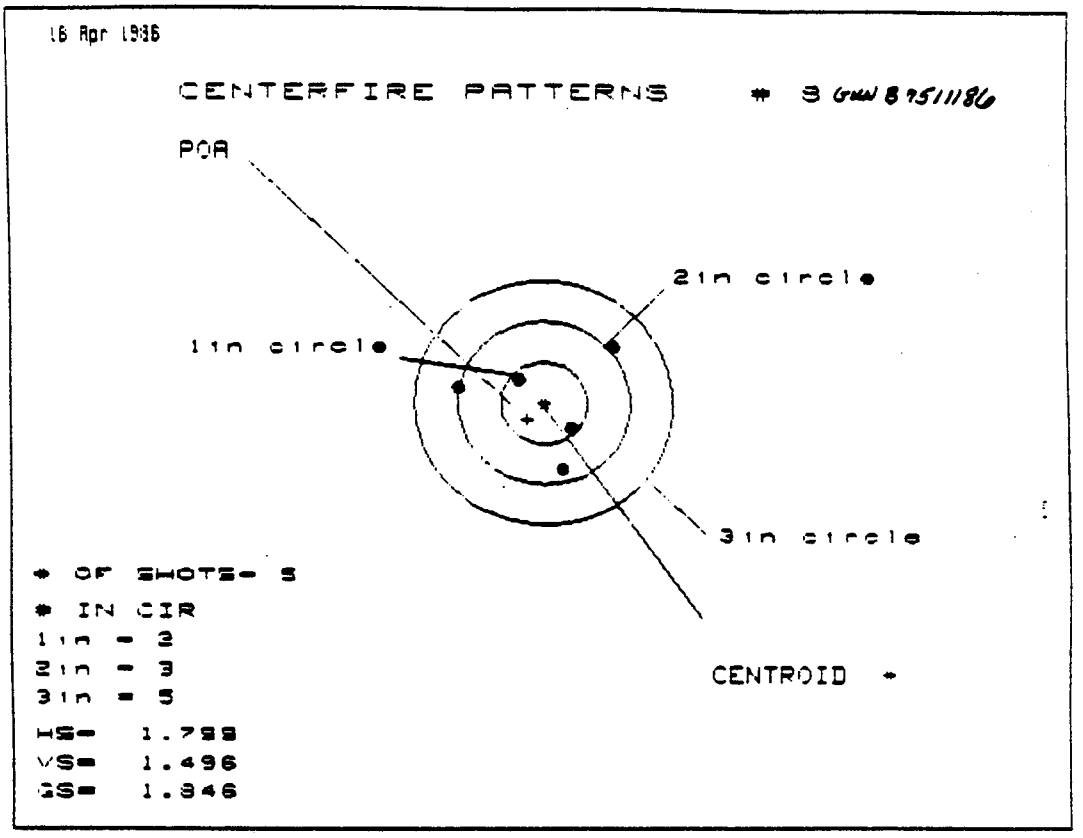


PATTERN #	:			
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.786	.692	.507
MINIMUM X	:	-.393	-.488	-.257
MAXIMUM Y	:	1.129	.534	.493
MINIMUM Y	:	-.588	-.298	-.339
CENTROID X	:	.025	.120	-.111
CENTROID Y	:	.129	-.153	-.112
POA TO CENTROID in.	:	.132	.194	.158
MIN RADIUS	:	.461	.299	.425
MEAN RADIUS	:	.756	.573	.583
MAX RADIUS	:	1.190	.718	.553
HORIZONTAL SPREAD	:	1.179	1.179	.764
VERTICAL SPREAD	:	1.709	.832	.832
EXTREME SPREAD	:	1.925	1.343	.996
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

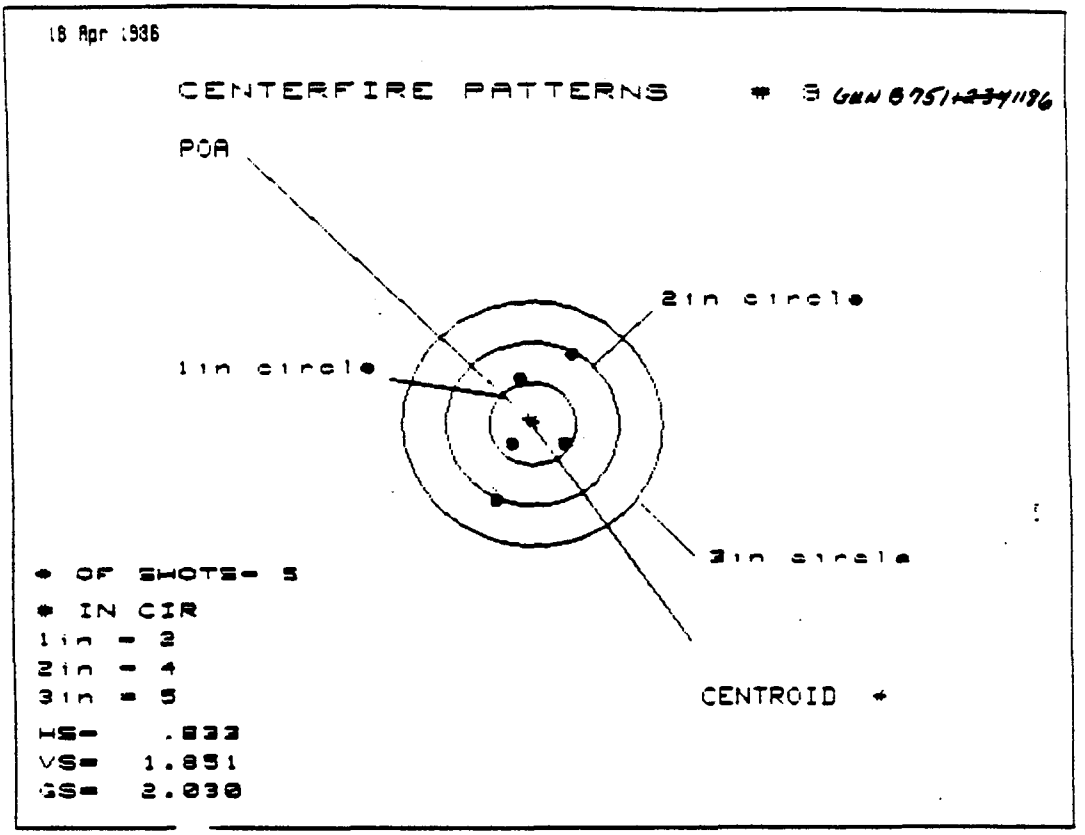


PATTERN # : [redacted]

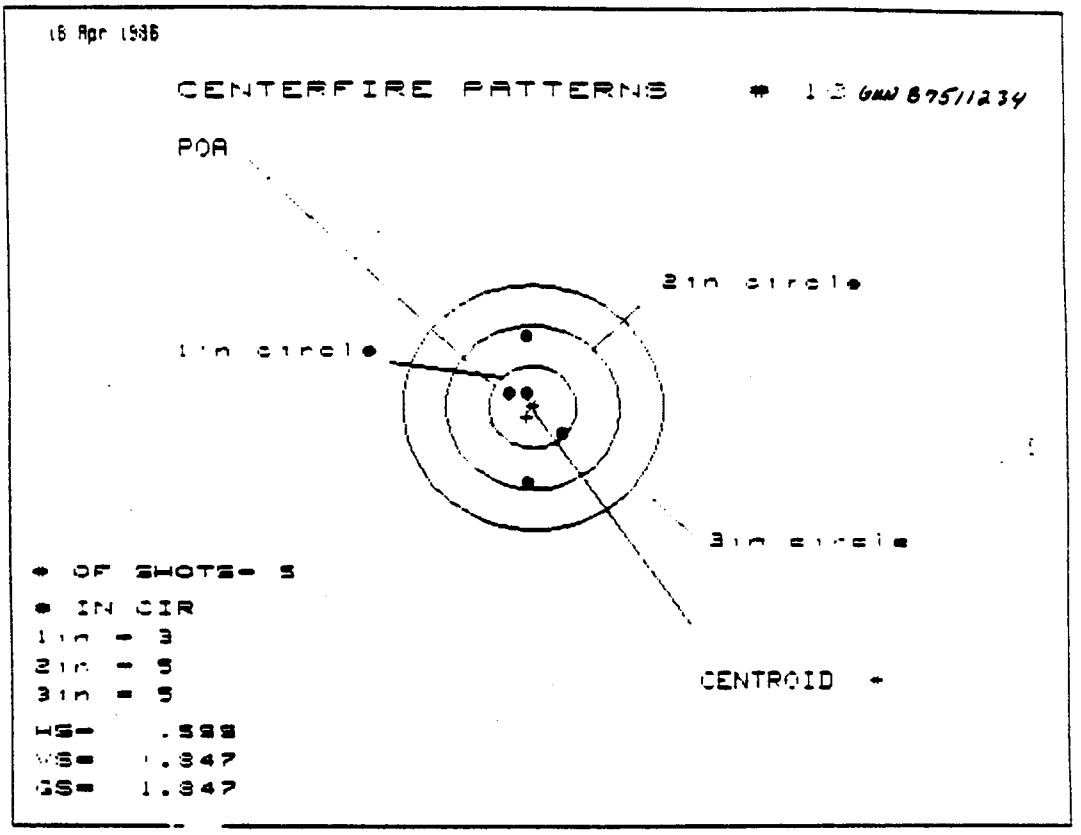
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.717	.659	.363
MINIMUM X	:	-.413	-.471	-.251
MAXIMUM Y	:	.711	.470	.685
MINIMUM Y	:	-.965	-.703	-.567
CENTROID X	:	-.094	-.036	-.256
CENTROID Y	:	.387	.548	.413
POA TO CENTROID in.	:	.321	.550	.486
MIN RADIUS	:	.212	.225	.365
MEAN RADIUS	:	.710	.605	.533
MAX RADIUS	:	.993	.846	.620
HORIZONTAL SPREAD	:	1.130	1.130	.614
VERTICAL SPREAD	:	1.676	1.172	1.172
EXTREME SPREAD	:	1.871	1.583	1.180
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:			
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.808	.489	.227
MINIMUM X	:	-.991	-.788	-.334
MAXIMUM Y	:	.646	.486	.538
MINIMUM Y	:	-.850	-.689	-.557
CENTROID X	:	.198	-.085	.258
CENTROID Y	:	.287	.046	-.086
POA TO CENTROID in.	:	.286	.046	.272
MIN RADIUS	:	.367	.412	.228
MEAN RADIUS	:	.737	.645	.476
MAX RADIUS	:	1.035	.882	.633
HORIZONTAL SPREAD	:	1.799	1.278	.561
VERTICAL SPREAD	:	1.496	1.095	1.095
EXTREME SPREAD	:	1.846	1.586	1.181
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	■		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.429	.328	.398
MINIMUM X	:	-.404	-.368	-.251
MAXIMUM Y	:	.887	.646	.521
MINIMUM Y	:	-.964	-.482	-.266
CENTROID X	:	.046	.147	.038
CENTROID Y	:	-.864	.177	-.039
POA TO CENTROID in.	:	.879	.238	.054
MIN RADIUS	:	.354	.398	.366
MEAN RADIUS	:	.681	.569	.460
MAX RADIUS	:	1.045	.724	.541
HORIZONTAL SPREAD	:	.833	.688	.649
VERTICAL SPREAD	:	1.851	1.128	.787
EXTREME SPREAD	:	2.030	1.321	.947
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

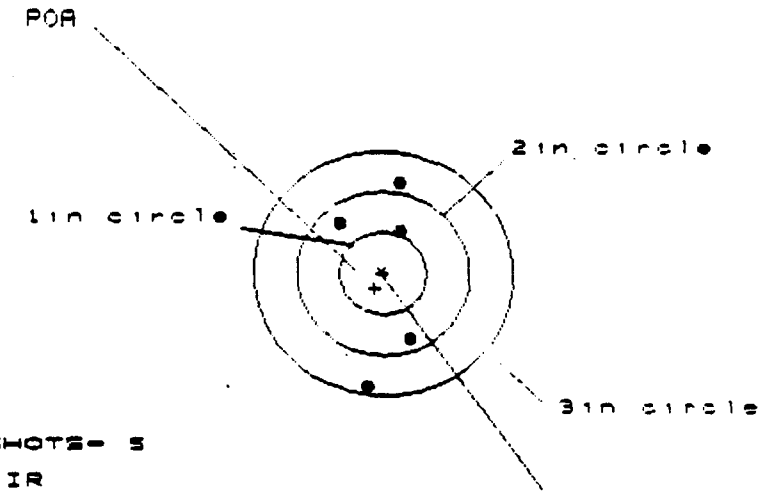


PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.368	.362	.341
MINIMUM X	:	-.231	-.237	-.258
MAXIMUM Y	:	.885	.644	.185
MINIMUM Y	:	-.962	-.535	-.320
CENTROID X	:	.072	.078	.099
CENTROID Y	:	.123	.364	.149
POA TO CENTROID in.	:	.143	.372	.179
MIN RADIUS	:	.170	.188	.158
MEAN RADIUS	:	.561	.488	.314
MA. RADIUS	:	.963	.647	.467
HORIZONTAL SPREAD	:	.599	.599	.599
VERTICAL SPREAD	:	1.847	1.179	.505
EXTREME SPREAD	:	1.8[illegible]	1.254	.733
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

Set 3

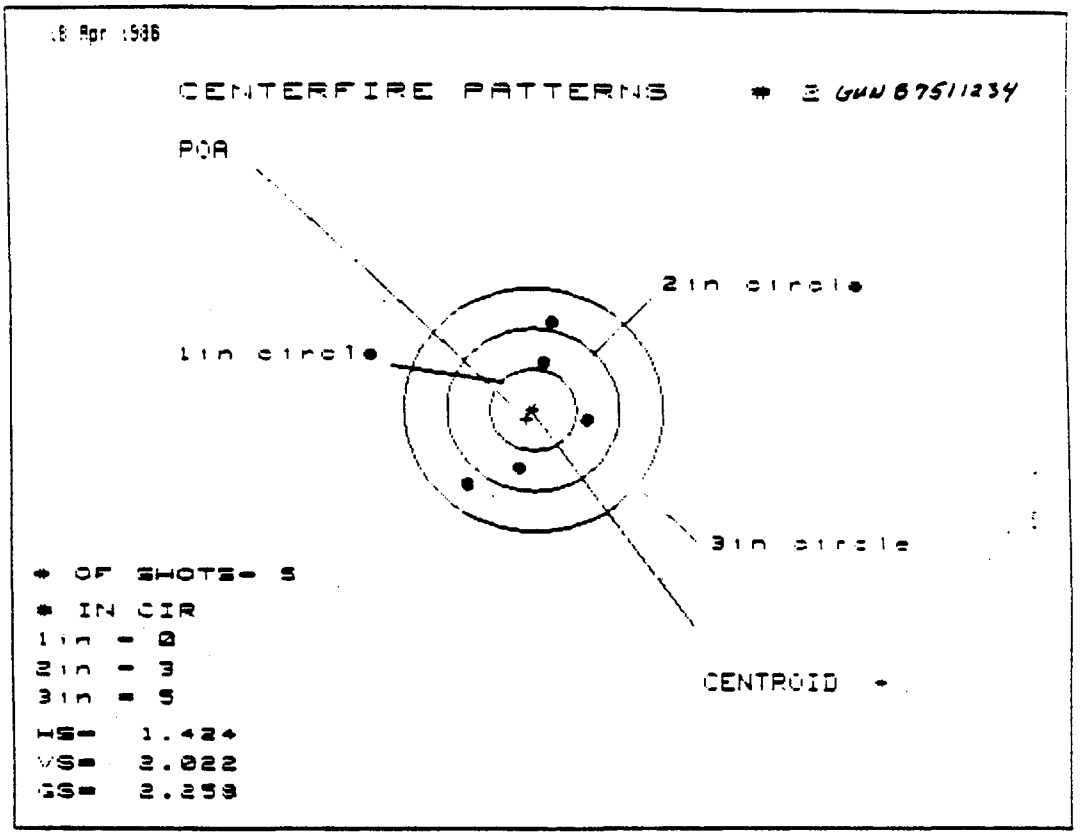
16 Apr 1986

CENTERFIRE PATTERNS # 1 GWN B751234

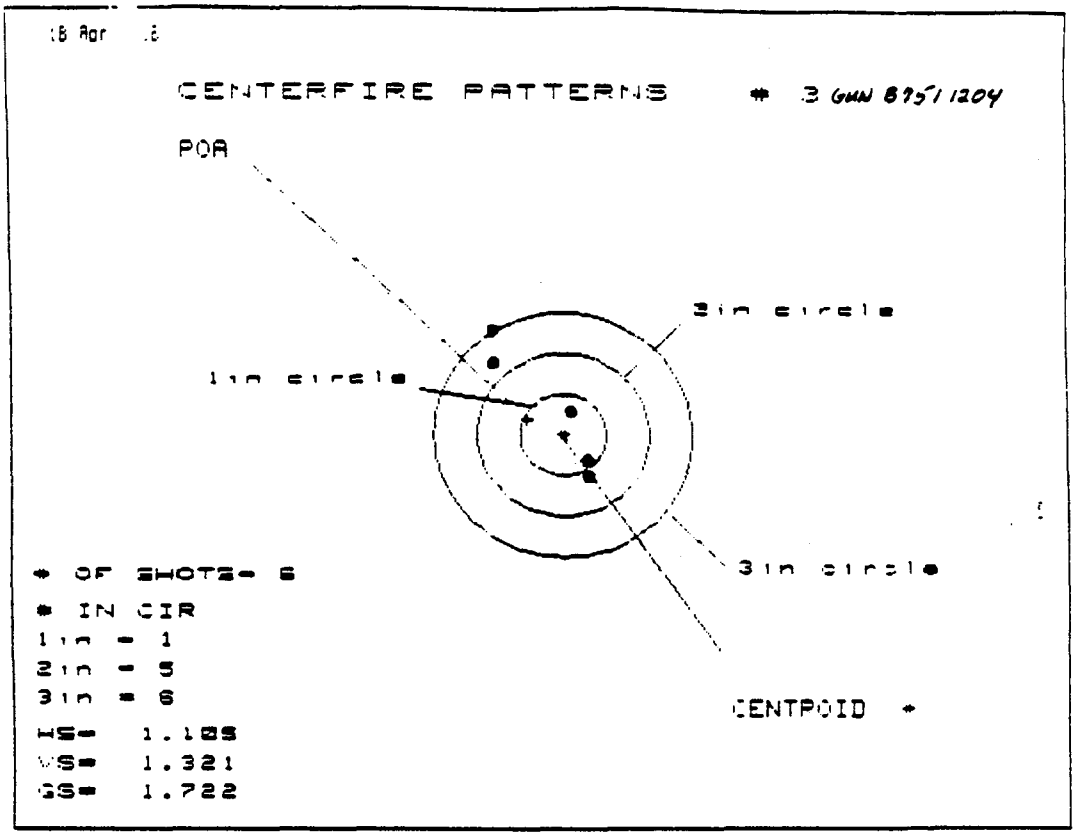


# OF SHOTS= 5
# IN CIR
1in = 0
2in = 3
3in = 5
HS= .735
VS= 2.516
GS= 2.555

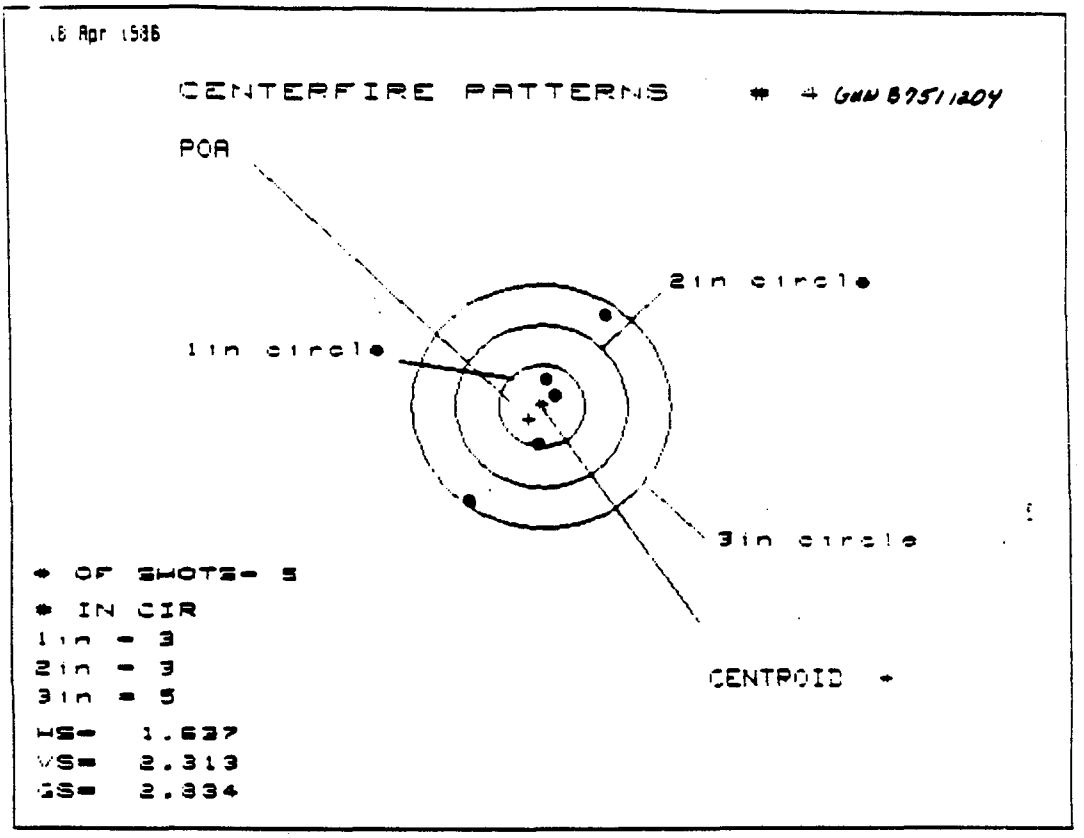
PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.263	.211	.272
MINIMUM X	:	-.472	-.524	-.463
MAXIMUM Y	:	1.086	.728	.532
MINIMUM Y	:	-1.430	-1.164	-.921
CENTROID X	:	.101	.153	.092
CENTROID Y	:	.185	.543	.308
POA TO CENTROID in.	:	.211	.564	.314
MIN RADIUS	:	.535	.195	.433
MEAN RADIUS	:	.948	.682	.708
MAX RADIUS	:	1.445	1.183	.960
HORIZONTAL SPREAD	:	.735	.735	.735
VERTICAL SPREAD	:	2.516	.892	1.453
EXTREME SPREAD	:	2.555	1.892	1.628
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	



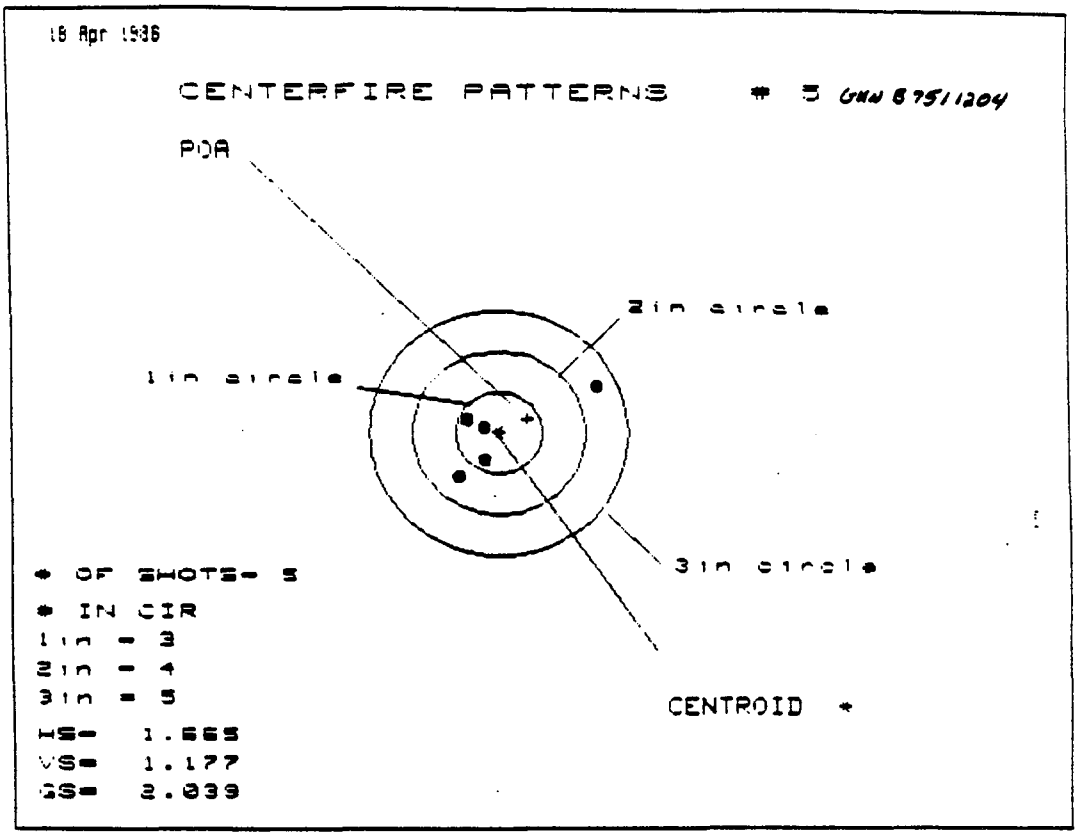
PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.626	.426	.428
MINIMUM X	:	-.798	-.388	-.378
MAXIMUM Y	:	1.120	.895	.674
MINIMUM Y	:	-.902	-.989	-.611
CENTROID X	:	.078	.278	.276
CENTROID Y	:	.116	.341	.043
POA TO CENTROID in.	:	.140	.440	.279
MIN RADIUS	:	.619	.379	.433
MEAN RADIUS	:	.862	.785	.609
MAX RADIUS	:	1.204	.985	.718
HORIZONTAL SPREAD	:	1.424	.806	.306
VERTICAL SPREAD	:	2.822	1.804	1.285
EXTREME SPREAD	:	2.258	1.845	1.326
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.265	.055	.072
MINIMUM X	:	-.840	-.141	-.122
MAXIMUM Y	:	.958	.511	.428
MINIMUM Y	:	-.463	-.248	-.225
CENTROID X	:	.418	.628	.689
CENTROID Y	:	-.189	-.404	-.321
POA TO CENTROID in.	:	.459	.747	.689
MIN RADIUS	:	.211	.125	.218
MEAN RADIUS	:	.664	.265	.297
MAX RADIUS	:	.956	.530	.445
HORIZONTAL SPREAD	:	1.105	.196	.194
VERTICAL SPREAD	:	1.321	.759	.653
EXTREME SPREAD	:	1.722	.784	.681
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		6	



PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.749	.527	.110
MINIMUM X	:	-.888	-.240	-.065
MAXIMUM Y	:	1.145	.853	.352
MINIMUM Y	:	-1.168	-.766	-.481
CENTROID X	:	.157	.379	.204
CENTROID Y	:	.164	.456	.171
POA TO CENTROID in.	:	.227	.593	.266
MIN RADIUS	:	.208	.168	.170
MEAN RADIUS	:	.775	.551	.337
MAX RADIUS	:	1.467	1.003	.486
HORIZONTAL SPREAD	:	1.637	.767	.175
VERTICAL SPREAD	:	2.313	1.619	.833
EXTREME SPREAD	:	2.834	1.791	.833
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	[redacted]		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.164	.168	.098
MINIMUM X	:	-.581	-.211	-.162
MAXIMUM Y	:	.615	.387	.171
MINIMUM Y	:	-.562	-.488	-.276
CENTROID X	:	-.338	-.628	-.550
CENTROID Y	:	-.169	-.323	-.187
POA TO CENTROID in.	:	.378	.699	.581
MIN RADIUS	:	.188	.219	.123
MEAN RADIUS	:	.596	.319	.217
MAX RADIUS	:	1.316	.459	.293
HORIZONTAL SPREAD	:	1.665	.379	.268
VERTICAL SPREAD	:	1.177	.715	.447
EXTREME SPREAD	:	2.039	.735	.517
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

SUMMARY STATISTICS
ON DATA SET:
Center line patterns

Subfile: B7511155

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.4893	.8031	.0749	.2736
HORIZONTAL	3	0	5.0160	1.6720	.0894	.2990
VERTICAL	3	0	5.4420	1.8140	1.1426	1.0689
MAX_SPREAD	3	0	6.8214	2.2738	.5791	.7610

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	34.06691	.1579	.12817	1.47809
HORIZONTAL	17.88278	.17263	.93439	2.40961
VERTICAL	58.92667	.61715	-.82296	4.45096
MAX_SPREAD	33.46786	.43936	.39649	4.15112

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.1513	-1.50000
HORIZONTAL	.70240	-1.50000
VERTICAL	.06065	-1.50000
MAX_SPREAD	-.11547	-1.50000

Subfile: B7511217

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.1735	.7245	.1690	.4110
HORIZONTAL	3	0	5.0040	1.6680	1.2408	1.1139
VERTICAL	3	0	3.8270	1.2757	.5601	.7484
MAX_SPREAD	3	0	5.9299	1.9766	1.0673	1.0331

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	56.73468	.23732	-.28951	1.73852
HORIZONTAL	66.78148	.64312	-1.07994	4.41594
VERTICAL	58.66756	.43209	-.57058	3.12192
MAX_SPREAD	52.26488	.59645	-.57190	4.52515

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.15763	-1.50000
HORIZONTAL	-.39134	-1.50000
VERTICAL	.62145	-1.50000
MAX_SPREAD	.10092	-1.50000

Subfile: B7511137

BASIC STATISTICS

VARIABLE

NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	1.7636	.5879	.0668	.2584
HORIZONTAL	3	0	4.6240	1.5413	1.5101	1.2289
VERTICAL	3	0	3.5690	1.1897	.0127	.1129
MAX_SPREAD	3	0	5.7018	1.9006	1.3445	1.1595

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	43.95782	.14919	-.04961	1.22531
HORIZONTAL	79.72738	.70949	-1.49018	4.57284
VERTICAL	9.48779	.06517	.91122	1.46312
MAX_SPREAD	61.00985	.66946	-.95992	4.76110

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.69297	-1.50000
HORIZONTAL	.69680	-1.50000
VERTICAL	.70704	-1.50000
MAX_SPREAD	.70541	-1.50000

Subfile: B7511598

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	1.9550	.6519	.0091	.0950
HORIZONTAL	3	0	4.1610	1.3870	.0354	.1881
VERTICAL	3	0	3.5570	1.1857	.2107	.4591
MAX_SPREAD	3	0	4.9675	1.6558	.0606	.2462

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	13.80021	.05194	.42999	.87388
HORIZONTAL	13.55827	.10857	.92389	1.85091
VERTICAL	38.71757	.26504	.05320	2.31813
MAX_SPREAD	14.86884	.14215	1.04847	2.26321

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.70879	-1.50000
HORIZONTAL	-.45185	-1.50000
VERTICAL	.62790	-1.50000
MAX_SPREAD	.38511	-1.50000

Subfile: 87511186

CELL STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.1277	.7092	.0008	.0279
HORIZONTAL	3	0	3.7620	1.2540	.2448	.4948
VERTICAL	3	0	5.0230	1.6743	.0315	.1775
MAX_SPREAD	3	0	5.7471	1.9157	.0099	.0997

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	3.93336	.01611	.64042	.77798
HORIZONTAL	39.45725	.28567	.03338	2.47462
VERTICAL	10.60158	.10248	1.23644	2.11223
MAX_SPREAD	5.20205	.05754	1.66985	2.16153

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	-.07721	-1.50000
HORIZONTAL	.44143	-1.50000
VERTICAL	-.01127	-1.50000
MAX_SPREAD	.65471	-1.50000

Subfile: B7511234

BASIC MULTIVE

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.3706	.7902	.0414	.2035
HORIZONTAL	3	0	2.7580	.9193	.1956	.4423
VERTICAL	3	0	6.3850	2.1283	.1204	.3469
MAX_SPREAD	3	0	6.6597	2.2199	.1262	.3553

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	25.74798	.11747	.29823	1.29213
HORIZONTAL	48.11231	.25537	-.17182	2.01048
VERTICAL	16.30122	.20031	1.27245	2.98422
MAX_SPREAD	16.00470	.20513	1.34343	3.09637

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	-.55714	-1.50000
HORIZONTAL	.00264	-1.50000
VERTICAL	.51016	-1.50000
MAX_SPREAD	-.19243	-1.50000

Subfile: B7511204

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.0356	.6785	.0082	.0906
HORIZONTAL	3	0	4.4070	1.4690	.0996	.3155
VERTICAL	3	0	4.8110	1.6037	.3825	.6185
MAX_SPREAD	3	0	6.5949	2.1983	.3279	.5726

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	13.34862	.05229	.45510	.90199
HORIZONTAL	21.48019	.18218	.69058	2.24742
VERTICAL	38.56822	.35709	.07786	3.12947
MAX_SPREAD	26.04704	.33059	.78576	3.61085

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.28337	-1.50000
HORIZONTAL	-.70005	-1.50000
VERTICAL	.66423	-1.50000
MAX_SPREAD	.47153	-1.50000

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DETERS

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

QR # 000873

XC: L. B. Bosquet
G. J. Hill
R. J. Long
W. J. Newkirk
D. I. Roark
K. W. Soucy

March 27, 1986

J. J. BURNS

XP-100, CAL. .223, TRIAL AND PILOT - FINISH GUN AUDIT

SUMMARY:

This lot is rejected for mechanical and visual nonconformities. On two of the eight sample guns, safety switch operating force became unsatisfactory. All stock assemblies of the sample contained significant visual nonconformities.

CONCLUSIONS:

Corrective actions to reduce the likelihood of such quality problems in the future are needed at:

- o Stock assembly
- o Final assembly

IMMEDIATE FOLLOW-UP:

All nonconforming product was contained on 3/26/86.

Nonconforming stock assemblies were reviewed with the Foreman of the originating Dept. on 3/26/86.

Mechanical checks and rework began on 3/27/86.

The Custom Shop Supervisor was notified 3/27/86.

J. J. BURNS

QR # 000873
March 27, 1986

XP-100, CAL. .223, TRIAL AND PILOT - FINISH GUN AUDIT - contd.

RESULTS:

Observed nonconformities are ranked below in the order of estimated overall importance (highest first); weighing both the individual seriousness of the nonconformity and its observed frequency of occurrence.

Mechanical:

The safety switch operating force dropped abruptly and its movement became sloppy when the lower leg of the safety snap washer became disengaged from the notch in the safety pivot pin.

Visual:

All eight sample stock assemblies had an abrupt and very noticeable difference in surface luster between the sides of the fore-end and the rest of the Stock.

Approximately half the sample stocks had obvious scratches, scrapes or mars. (The final assembler reported that he sometimes receives stock assemblies piled, en masse, in a cardboard box; instead of in individually-compartmented short stock wire racks.)

All eight sample barrel assemblies show a polish mismatch (transition) just in front of the fore-end. This distracts from the appearance and perceived quality of the product; it is believed this will be objectionable to a minority of customers.

W. A. Warren, Jr.
Quality Assurance Analyst

WAW/bdm

-100 86
23 Rem
T&P Evaluation
UAL - Measurements - Accuracy

Report to Sned for proofreading 4/21/86

FRED S. 5-2-85

FOR YOUR INFO...

Bill Warren

RD-69-B

QR # 000873

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

XC: L. B. Bosquet
G. J. Hill
R. J. Long
W. J. Newkirk
D. I. Roark
K. W. Soucy

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

March 27, 1986

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J. J. BURNS

QR # 000873
March 27, 1986

XP-100, CAL. .223, TRIAL AND PILOT - FINISH GUN AUDIT - contd.

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W. A. Warren, Jr.
Quality Assurance Analyst

WAW/bdm

Report No. Y60972

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	
X Pilot	____ Design Change	Stake ____	
X Production Acceptance	____ Plant Assistance	X Other ADDED CALIBER	

FIREARM STAT'S.

MODEL: XP-100

CAL. or GAGE: 223 REM

BARREL TYPE: PRODUCTION

~~PROOFED: YES ____ NO ____~~

REPORT REQ'D.

FORMAL X

TEST RESULTS ONLY ____

DATE REQUESTED: APRIL 7, 86

DATE NEEDED BY: ASAP

REQUESTED BY: A. A. HUGICK

WORK ORDER NO: 925C0805

TEST TYPE

____ Strength Test	____ Ammunition Test	____ Dry Cycle Test	____ Photo/Video
X Function Test	____ Environmental Test	____ Measurements	X Other TRIAL & PILOT
X Accuracy Test	____ Customer Complaint	____ Endurance Test	

EXPLAIN IN DETAIL THE REASON FOR THIS TEST:

CONDUCT XP-100 - 223 REM TRIAL & PILOT.

GUNS REQUIRED:

LISTED PER ATTACHED LETTER NO. 2220

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: ____

cc: J. White

TO: D. CHRISTIE

ILION RESEARCH DIVISION

FIREARMS WITHDRAWAL AND ~~RETURN~~ XXXXXXXXXX

DATE 4/7/86

LETTER NO. 2220

QUANTITY 8

RAMAC # 925492

MODEL XP-100 CAL./GA. 223 WORK ORDER 925 C-0805

SERIAL NOS.

(7)
[X] Will Be

(1)
[X] Will Not Be Returned

To be used for:

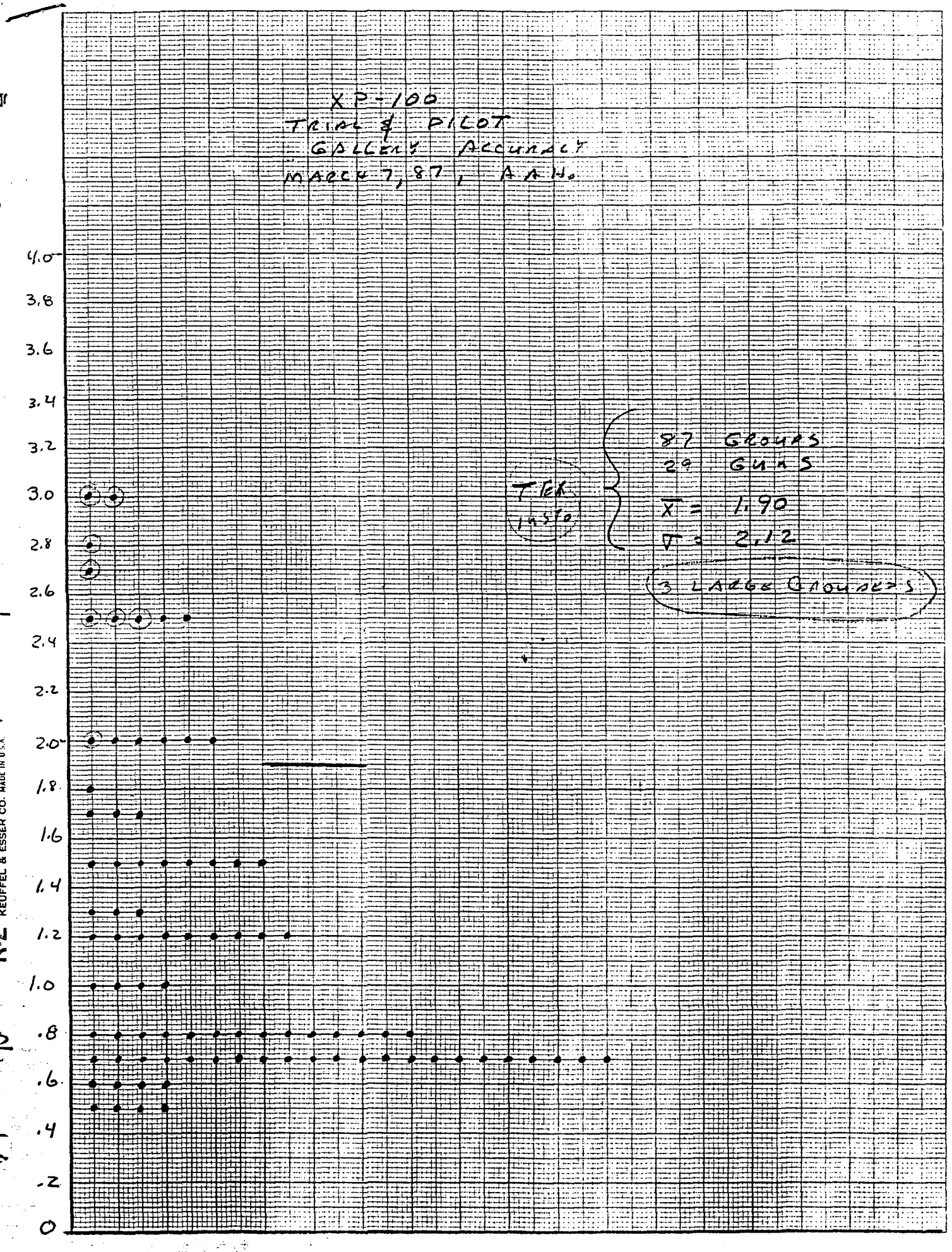
[X] Testing

[ ] Other _____

REMARKS:

AAHugick:js

Approved


XP-100
TRIAL 4 PILOT
GALLERY ACCURACY
MARCH 7, 87, AAHO.
TEK
INSTO
87 GROUPS
29 GUNS
X̄ = 1.90
σ = 2.12
3 LARGE GROUPERS
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
.8
.6
.4
.2
0
461510
10 X 10 TO THE CENTIMETER 18 X 25 CM.
KEUFFEL & ESSER CO. MADE IN U.S.A.

1.75 MAR

55 GR H.P.

SPECIAL TEST REPORT

MODEL XP100 223 SHOOTER R CANADA DATE 3-5-86

Gun No.	Ga./ Cal.	Heavy Jack Rds.	Type	Results	Light Jack Rds.	Type	Results
37X	223	3 Shot + 55 3 GR H.P.		0.7 0.8 0.7 (.73)		0818	0.7 0.6 0.6 (.63)
20				0.7 0.7 0.8 (.73)		1219	0.7 0.7 0.7 (.7)
21				1.2 1.5 1.5 (1.3)		1233 X	1.7 1.8 1.7 (1.73)
11				0.8 1.0 1.0 (.93)		1631	EDS
5 X				1.2 1.5 1.5 (1.40)			
13				0.8 0.7 2.0 (1.16)			
6				1.5 0.8 1.5 (1.26)			
21				1.2 0.8 1.0 (1.00)			
5				2.5 1.2 0.8 (1.5)			
9				1.0 0.9 0.7 (.53)			
2				1.5 1.5 2.0 (1.66)			
4				2.0 1.7 1.2 (1.63)			
3				2.0 2.5 2.8	(2.43)		
4 X				0.7 0.8 1.2 (.9)			
7 X				0.5 0.7 0.7 (.63)			
5				2.0 1.5 1.2 (1.56)			
5				2.5 0.8 0.7 (1.33)			
4 X				0.8 0.7 0.7 (.73)			
5				0.5 0.7 0.7 (.63)			
10				2.0 1.3 1.2 (1.5)			
9				0.5 0.8 0.8 (.7)			
8				0.7 0.7 0.8 (.73)			
9				0.7 0.5 1.3 (.83)			
61				2.5 2.7 3.0	(2.73)		
76				3.0 2.5 1.2	(2.23)		

H&R Topper Report

TP 8605/5/2

~~19.338~~

38.647

50.055

47.805

~~1 5.242~~

1.99

27.623

34.081

9816 - [illegible] Soft Logo

9836 - 10

9000 - 8

3 different CRT's

Resolution in manuals -

155 =	2.27	1.41	1.29
217 =	1.98	1.~~43~~ 53	1.~~15~~ 14
233 =	1.79	1.28	1.~~0~~ 0 ~~0.9~~
137 =	1.90	0.85	0.61
598 =	1.66	1.40	1.02
186 =	1.92	1.50	1.10
234 =	2.22	1.66	1.26
204 =	2.20	1.10	0.68

Bob Howe
Terry Douglas
Fred Supry

10:00 4pm

XF-100 223 T&P

VISUAL INSPECTION -

Packed March 20, 1986

B7511233 - Mark bottom of fore-end, Glue diamond Glue left side
- braze shows through under bolt handle
- color off handle in two spots
- Bright Mar on trigger

Packed March 20, 1986

B7511217 - Braze shows though under bolt handle
- white line spacers look dirty
- Fore-end tip rough at barrel groove
- glue marks on stock
- luster mismatch (Butt is rough right fore-end panel)
- Diamond is cracked bottom rear (PISTOL GRIP)

B7511204 - Random glue marks
- upper part of right grip is rough
- poor polish on bolt handle
- luster mismatch both sides
- Some of warning roll mark below fore-end

37511234 - glue (random locations) - front line spacer
Mar on bolt head
barrel grooves rough
- striatrows don't meet with center of diamond

B7511598 - inside of Rec - several cutter marks ***
- Gouges out of diamond left side
- braze shows through under bolt handle
- Part of warning foil mark hidden by fore-end
- luster mismatch fore-end

B7511186 - random glue marks
mar bottom rear of bolt
burr on bolt handle & bolt lug
- lu

- Acceptable

More care with stock - buffing - glue, etc

NOTE: - ~~Black shows in front of rear receiver ring~~ with bolt closed - should this be ?
- Safety difficult to work

headspace, Trigger pull

XP. 100
T & P

#	Hd. Space MIN +	TRIGGER PULL 165
1217	.002	2.0
1233	.003	2.0
1598	.001	1 3/4
1186	.003	1 3/4
1204	.002	2 1/4
1234	.002	2.0
1137	.005	2 1/4
1155	.001	2.0

R223R2

55 gr Power-lokT Hollow point

Code # V08 002301

RD-69-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

cc: W.H. Coleman, II/File
J.W. Bower
J.G. Hill
J.R. Snedeker
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 860972

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

ABSTRACT:

Research and Development finds the Trial and Pilot Evaluation of the Model XP-100 .223 REM caliber to be acceptable. However, the following should be investigated, by production:

1. During the Visual inspection all of the pistols were found to have some random spots of glue, and the stock luster was mismatched. More care needs to be taken during the assembly of the stocks.

Prepared by: F.L. SUPRY
Date Prepared: 4/18/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab _____

W.H. COLEMAN, II
New Products Research Lab Director _____

REP.#860972 W.O.# 925C0805

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

On April 07, 1986 a request to conduct a Trial and Pilot Evaluation on the Model XP-100 .223 REM. caliber pistol was received by the Test Lab. The evaluation would use eight guns, withdrawn from the warehouse, and consist of Visual Inspection, and 100 Yard Accuracy.

SCOPE OF TEST:

To determine if the production run samples meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the .223 REM. caliber, was found to be acceptable in all phases of the Trial and Pilot Evaluation.

REPORT TEXT:

1. VISUAL INSPECTION:

A. The visual inspection committee found no major items in the appearance of the pistols inspected.

B. The following general comments were made in overall reference to the pistols:

a. The luster of the pistols needs improvement.

b. The removing of the excess glue needs improvement.

C. The pistols used in the visual inspection were:

B7511233	B7511217	B7511204
B7511234	B7511598	B7511186

D. Comments recorded for each individual pistol are located in the appendix of this report.

2. ACCURACY:

A. Eight (8) pistols were tested for 100 yard accuracy.

B7511233	B7511217	B7511204	B7511137
B7511234	B7511598	B7511186	B7511155

B. The following averages were established:

a. Group Size: 1.99 inches

b. Horizontal Spread: 1.42 inches

c. Vertical Spread: 1.51 inches

B. Accuracy results per individual pistol are located in the appendix of this report.

TEST PROCEDURE:

1. VISUAL INSPECTION:

   A. The Visual Inspection Committee consisted of W. Warren, (Q.C.); R. Howe, F. Supry, and T. Douglas, (Research).

   B. Six (6) of the eight (8) pistols were used for the visual inspection.

   C. Each pistol was wiped down with a clean white Coyne towel, and examined by each member of the Visual Inspection Committee. All comments were recorded.

   D. Following the visual inspection, headspace and trigger pull measurements were taken on all eight pistols.

2. ACCURACY:

   A. The accuracy was shot by T. Douglas, J. Ronkainen, and K. Calkins, (Research), at the R & D 100 yard range.

   B. Leupold bases (standard long action) and Leupold one (1) inch rings were used, in conjunction with a Redfield 12X scope.

   C. Remington ammunition, index R223R2; code U08-002301, 55 grain hollow point, was used for the 100 yard accuracy test.

   E. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

   F. A total of three (3), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

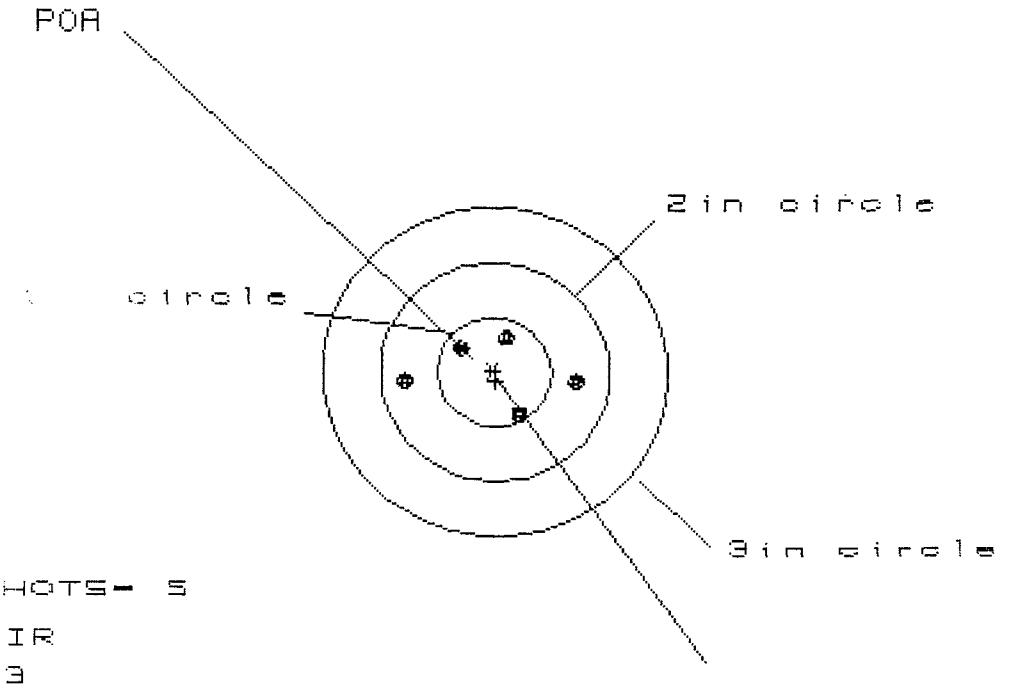
   G. The patterns were analyzed for group size, horizontal spread, and vertical spread, using the HP 9000 computer. The averages were calculated for each pistol.

APPENDIX

GROUP 1

18 Apr 1986

CENTERFIRE PATTERNS # 1 GUN B 7511155



SHOTS= 5

IR

1 in = 3

2 in = 5

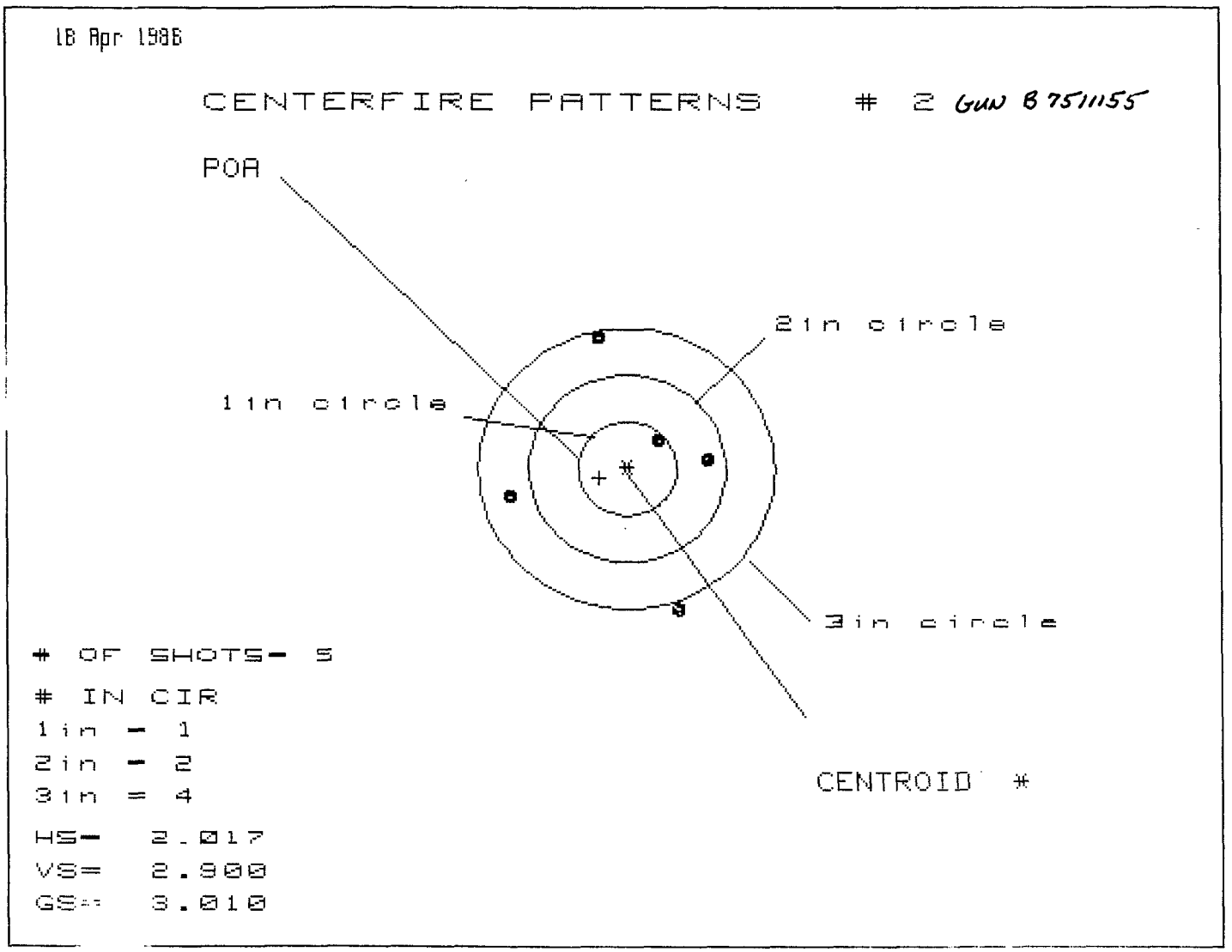
3 in = 5

MG= 1.488

VS .763

1.490

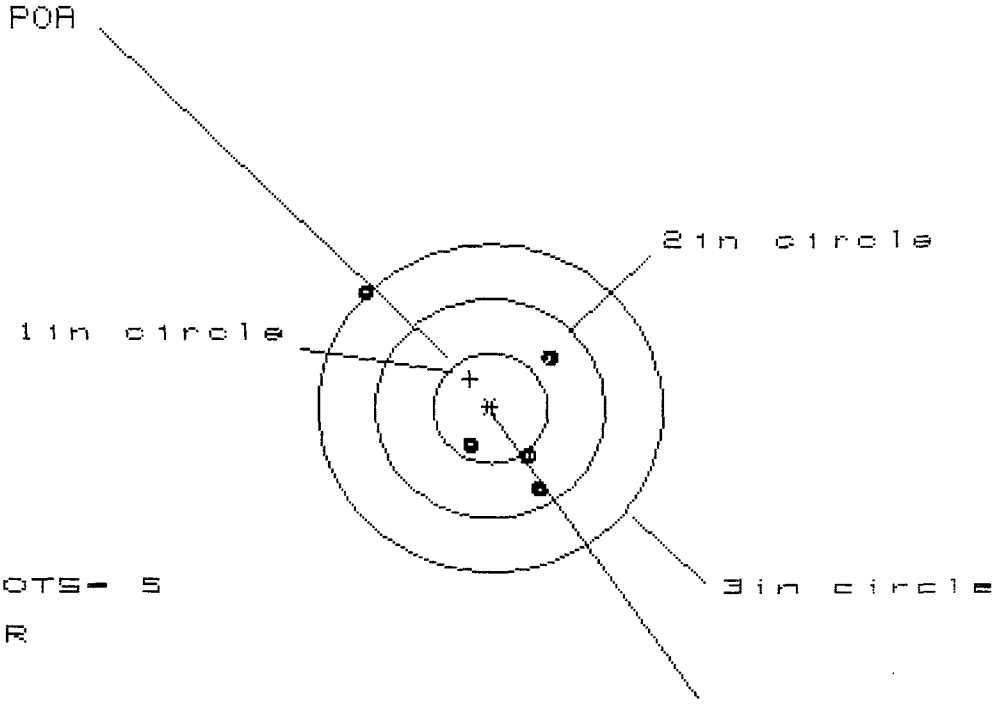
PATTERN #	:	1		
BEST OF	:	5	4	3
MEAN X	:	.693	.494	.216
MINIMUM Y	:	-.795	-.498	-.333
MAXIMUM	:	.360	.352	.313
MINIMUM Y	:	-.403	-.411	-.450
CENTROID X	:	-.011	.188	.023
CENTROID Y	:	.081	.089	.128
POA TO CENTROID in.	:	.081	.208	.130
MEAN RADIUS	:	.352	.355	.334
MEAN RADIUS	:	.543	.451	.398
MAX RADIUS	:	.796	.528	.499
HORIZONTAL SPREAD	:	1.488	.992	.549
VERTICAL SPREAD	:	.763	.763	.763
EXTREME SPREAD	:	1.490	1.035	.804
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE				
NUMBER IN THREE INCH CIRCLE				



PATTERN #	:	2		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.797	.918	.850
MINIMUM X	:	-1.220	-1.100	-1.167
MAXIMUM Y	:	1.400	1.024	.243
MINIMUM Y	:	-1.500	-.630	-.289
CENTROID X	:	.287	.167	.234
CENTROID Y	:	.096	.471	.130
POA TO CENTROID in.	:	.303	.500	.267
MIN RADIUS	:	.382	.396	.399
MEAN RADIUS	:	1.088	.918	.817
MAX RADIUS	:	1.576	1.267	1.202
HORIZONTAL SPREAD	:	2.017	2.017	2.017
VERTICAL SPREAD	:	2.900	1.655	.532
EXTREME SPREAD	:	3.010	2.045	2.045
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		2	
NUMBER IN THREE INCH CIRCLE	=		4	

LB Apr 1986

CENTERFIRE PATTERNS # 3 GUN B 751155



OF SHOTS= 5

# IN CIR
1in = 1
2in = 4
3in = 5

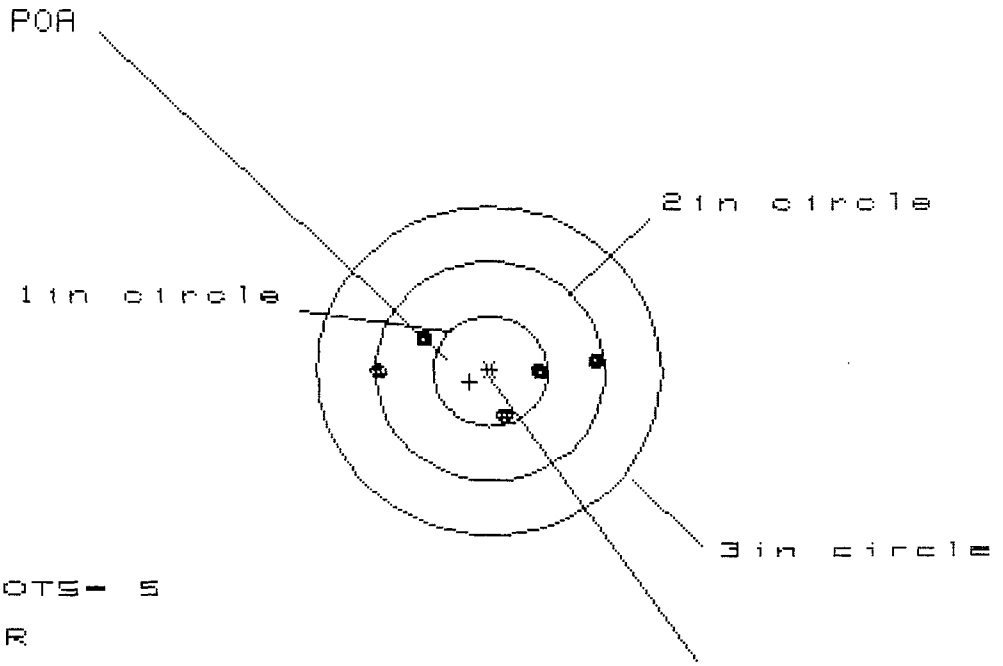
HS= 1.511
VS= 1.779
GS= 2.322

PATTERN # : 3

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.474	.214	.279
MINIMUM X :	-1.037	-.419	-.354
MAXIMUM Y :	1.073	.707	.561
MINIMUM Y :	-.706	-.438	-.338
CENTROID X :	.182	.442	.377
CENTROID Y :	-.268	-.536	-.390
POA TO CENTROID in.:	.324	.695	.542
MIN RADIUS :	.381	.192	.346
MEAN RADIUS :	.778	.459	.464
MAX RADIUS :	1.492	.739	.627
HORIZONTAL SPREAD :	1.511	.633	.633
VERTICAL SPREAD :	1.779	1.145	.899
EXTREME SPREAD :	2.322	1.145	1.008
NUMBER IN ONE INCH CIRCLE =		1	
NUMBER IN TWO INCH CIRCLE =		4	
NUMBER IN THREE INCH CIRCLE =		5	

18 Apr 1986

CENTERFIRE PATTERNS # 4 GUN B 7511217



OF SHOTS= 5

# IN CIR
1in = 2
2in = 5
3in = 5

HS= 1.919
VS= .726
GS= 1.920

PATTERN #	:	4		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.959	.652	.412
MINIMUM X	:	-.960	-.720	-.579
MAXIMUM Y	:	.308	.332	.356
MINIMUM Y	:	-.418	-.394	-.370
CENTROID X	:	.177	-.063	.177
CENTROID Y	:	.099	.075	.051
POA TO CENTROID in.	:	.203	.098	.184
MIN RADIUS	:	.414	.475	.406
MEAN RADIUS	:	.689	.604	.499
MAX RADIUS	:	.964	.724	.680
HORIZONTAL SPREAD	:	1.919	1.372	.991
VERTICAL SPREAD	:	.726	.726	.726
EXTREME SPREAD	:	1.920	1.374	1.048
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

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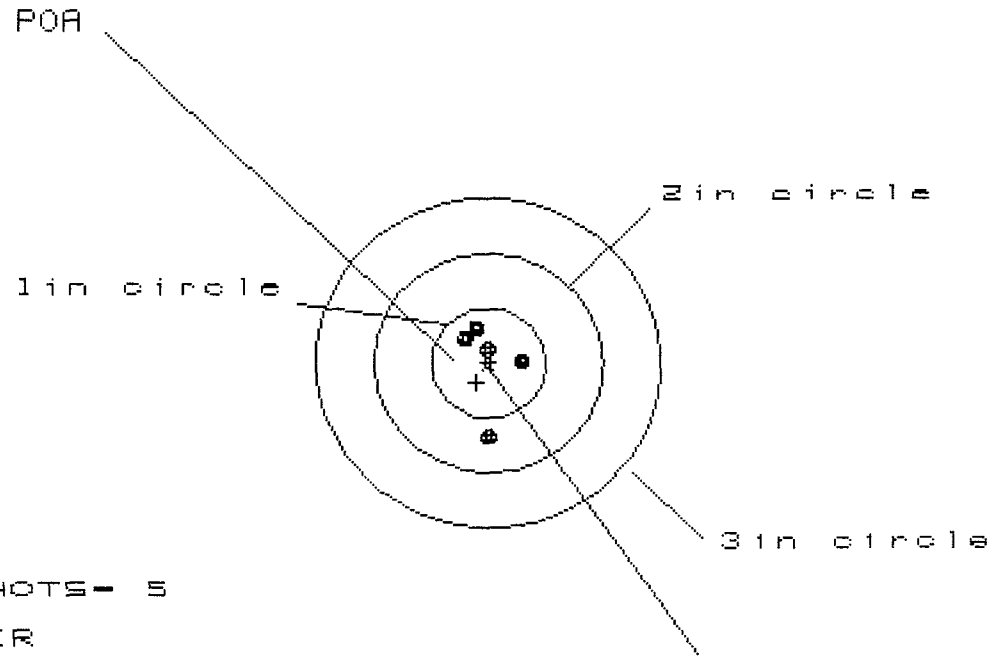
CENTERFIRE PATTERNS # 5 GUN B 7511217



OF SHOTS= 5

# IN CIR
1in = 4
2in = 5
3in = 5

HS= .450
VS= .973
GS= .973

PATTERN #	:	5		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.288	.278	.253
MINIMUM X	:	-.162	-.173	-.197
MAXIMUM Y	:	.317	.153	.124
MINIMUM Y	:	-.656	-.165	-.115
CENTROID X	:	.107	.118	.142
CENTROID Y	:	.174	.338	.288
POA TO CENTROID in.	:	.205	.358	.321
MIN RADIUS	:	.106	.069	.057
MEAN RADIUS	:	.332	.187	.189
MAX RADIUS	:	.658	.323	.278
HORIZONTAL SPREAD	:	.450	.450	.450
VERTICAL SPREAD	:	.973	.318	.239
EXTREME SPREAD	:	.973	.510	.510
NUMBER IN ONE INCH CIRCLE	=		4	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

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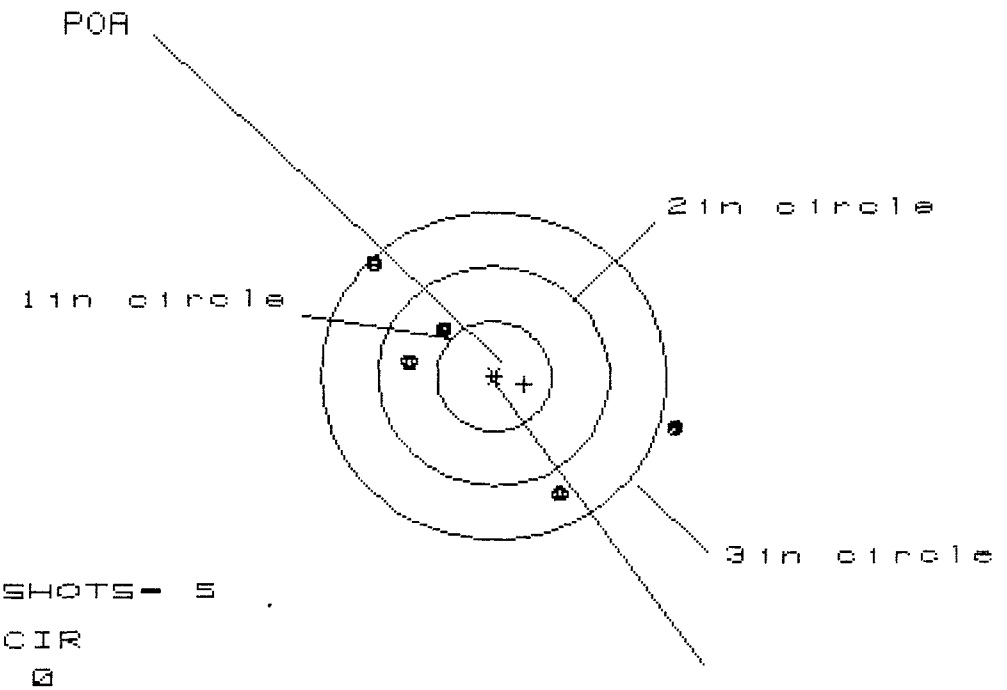
CENTERFIRE PATTERNS # 6 Gun B 7511217



OF SHOTS= 5

# IN CIR
1in = 0
2in = 2
3in = 4

HS= 2.635
VS= 2.128
GS= 3.037

PATTERN #	:	6		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.592	1.011	.796
MINIMUM X	:	-1.043	-.645	-.556
MAXIMUM Y	:	1.016	.892	.621
MINIMUM Y	:	-1.112	-1.236	-.938
CENTROID X	:	-.266	-.663	-.448
CENTROID Y	:	.069	.193	-.105
POA TO CENTROID in.	:	.274	.691	.460
MIN RADIUS	:	.616	.324	.640
MEAN RADIUS	:	1.152	.841	.845
MAX RADIUS	:	1.667	1.597	1.231
HORIZONTAL SPREAD	:	2.635	1.657	1.352
VERTICAL SPREAD	:	2.128	2.128	1.559
EXTREME SPREAD	:	3.037	2.697	1.872
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		2	
NUMBER IN THREE INCH CIRCLE	=		4	

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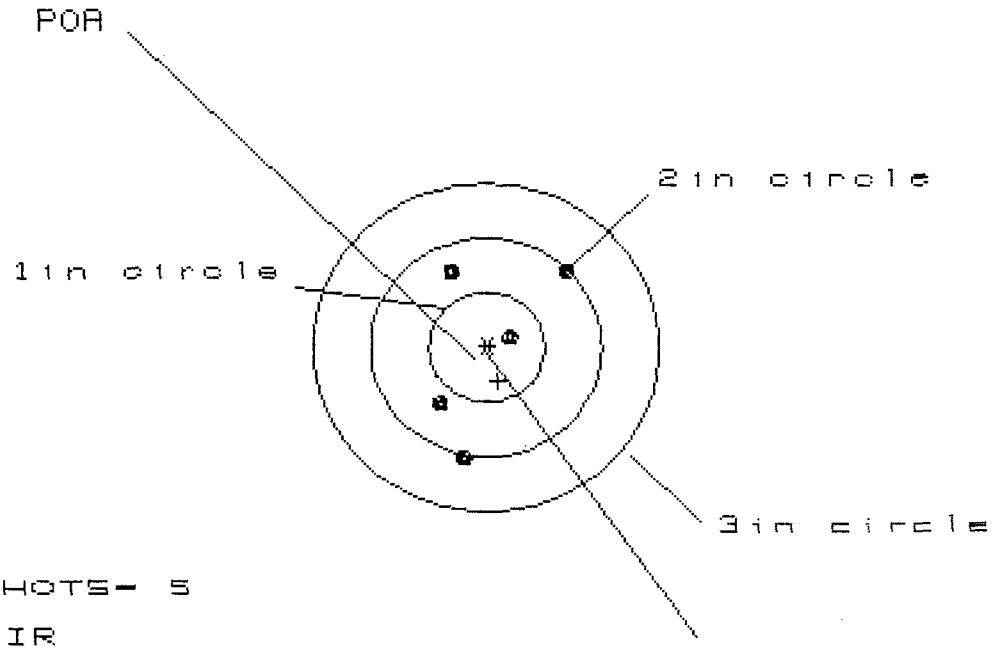
CENTERFIRE PATTERNS # 7 GUN B7511186



OF SHOTS= 5

# IN CIR	
1in	1
2in	5
3in	5

HS=	1.130
VS=	1.676
GS=	1.871

PATTERN #	:	7		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.717	.659	.363
MINIMUM X	:	-.413	-.471	-.251
MAXIMUM Y	:	.711	.470	.605
MINIMUM Y	:	-.965	-.703	-.567
CENTROID X	:	-.094	-.036	-.256
CENTROID Y	:	.307	.548	.413
POA TO CENTROID in.	:	.321	.550	.486
MIN RADIUS	:	.212	.225	.365
MEAN RADIUS	:	.710	.605	.533
MAX RADIUS	:	.993	.846	.620
HORIZONTAL SPREAD	:	1.130	1.130	.614
VERTICAL SPREAD	:	1.676	1.172	1.172
EXTREME SPREAD	:	1.871	1.583	1.180

NUMBER IN ONE INCH CIRCLE	=	1
NUMBER IN TWO INCH CIRCLE	=	5
NUMBER IN THREE INCH CIRCLE	=	5

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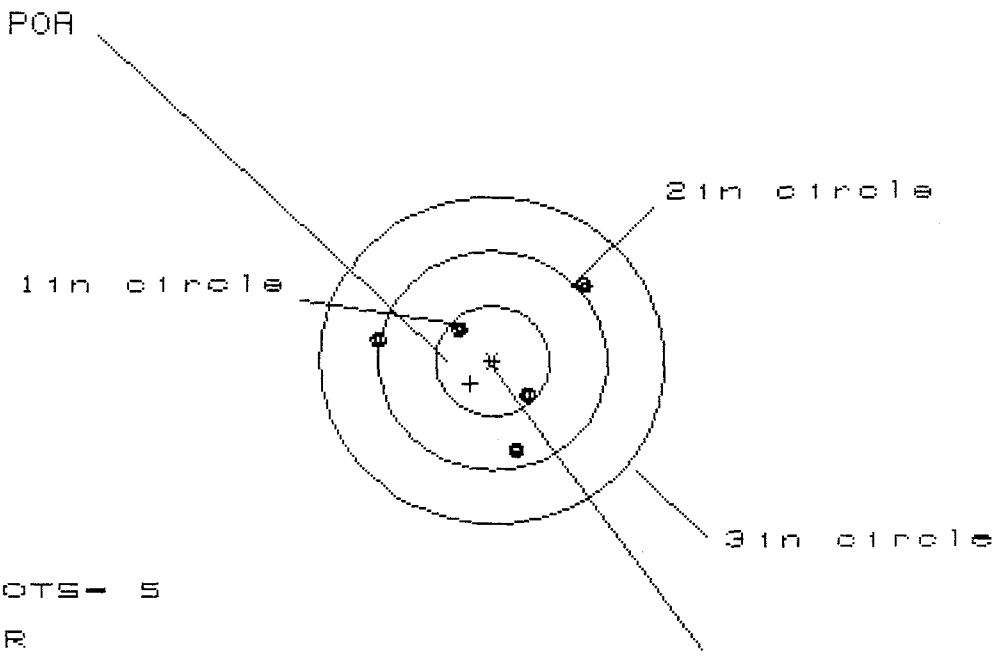
CENTERFIRE PATTERNS # 8 GUN B 7511186



OF SHOTS= 5

# IN CIR
1in = 2
2in = 3
3in = 5

HS= 1.799
VS= 1.496
GS= 1.846

PATTERN #	:	8		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.808	.489	.227
MINIMUM X	:	-.991	-.788	-.334
MAXIMUM Y	:	.646	.406	.538
MINIMUM Y	:	-.850	-.689	-.557
CENTROID X	:	.198	-.005	.258
CENTROID Y	:	.207	.046	-.086
POA TO CENTROID in.	:	.286	.046	.272
MIN RADIUS	:	.367	.412	.228
MEAN RADIUS	:	.737	.645	.476
MAX RADIUS	:	1.035	.882	.633
HORIZONTAL SPREAD	:	1.799	1.278	.561
VERTICAL SPREAD	:	1.496	1.095	1.095
EXTREME SPREAD	:	1.846	1.586	1.181
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	

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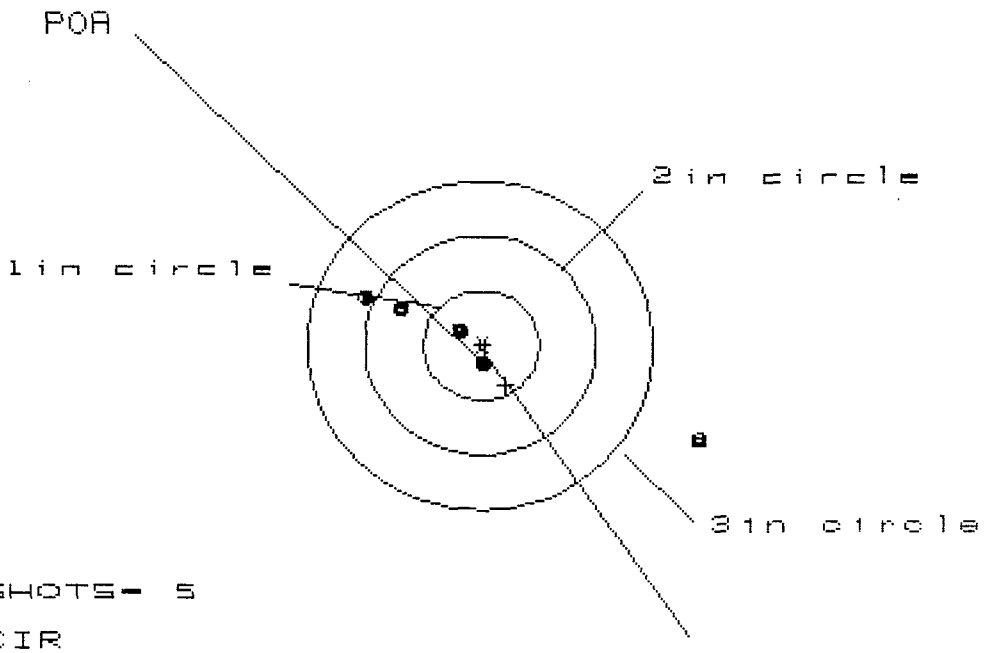
CENTERFIRE PATTERNS # 2 GUN B75111137



OF SHOTS= 5

# IN CIR
1in = 2
2in = 3
3in = 4

HS= 2.958
VS= 1.320
GS= 3.239

PATTERN # : 2

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	1.939	.460	.282
MINIMUM X :	-1.019	-.534	-.384
MAXIMUM Y :	.481	.271	.246
MINIMUM Y :	-.839	-.363	-.273
CENTROID X :	-.206	-.691	-.513
CENTROID Y :	.362	.572	.482
POA TO CENTROID in.:	.417	.897	.704
MIN RADIUS :	.155	.258	.105
MEAN RADIUS :	.886	.433	.318
MAX RADIUS :	2.113	.599	.456
HORIZONTAL SPREAD :	2.958	.994	.666
VERTICAL SPREAD :	1.320	.634	.519
EXTREME SPREAD :	3.239	1.179	.844
NUMBER IN ONE INCH CIRCLE =		2	
NUMBER IN TWO INCH CIRCLE =		3	
NUMBER IN THREE INCH CIRCLE =		4	

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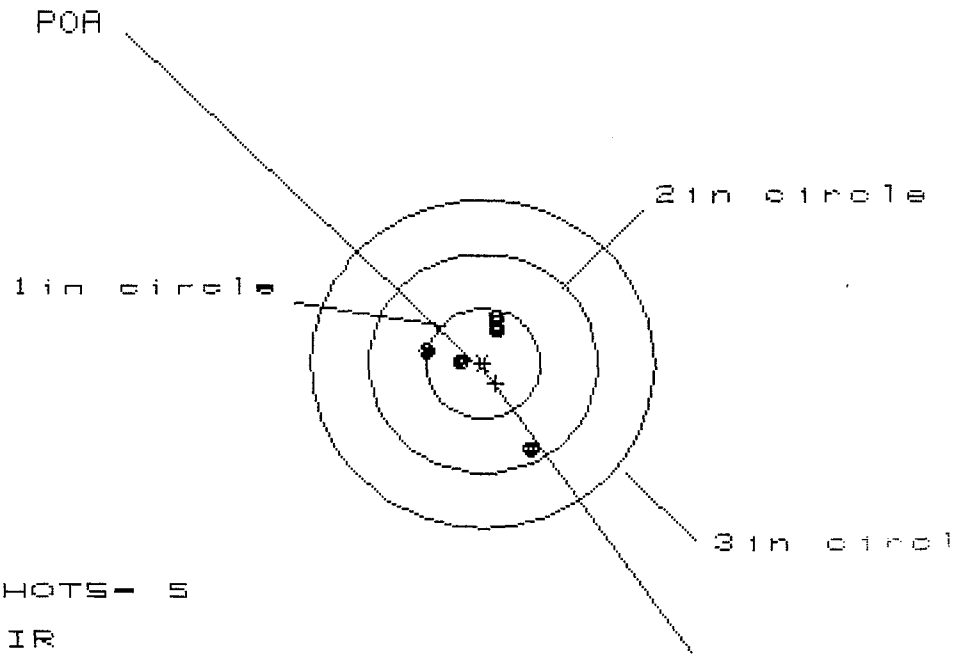
CENTERFIRE PATTERNS # 1 GUN B751137



OF SHOTS= 5

# IN CIR
1in = 4
2in = 5
3in = 5

HS= .903
VS= 1.125
GS= 1.258

PATTERN #	:	1		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.439	.256	.138
MINIMUM X	:	-.464	-.354	-.247
MAXIMUM Y	:	.369	.180	.156
MINIMUM Y	:	-.756	-.190	-.213
CENTROID X	:	-.109	-.219	-.101
CENTROID Y	:	.182	.371	.395
POA TO CENTROID in.	:	.213	.431	.407
MIN RADIUS	:	.239	.229	.122
MEAN RADIUS	:	.456	.286	.219
MAX RADIUS	:	.875	.361	.326
HORIZONTAL SPREAD	:	.903	.610	.385
VERTICAL SPREAD	:	1.125	.369	.369
EXTREME SPREAD	:	1.258	.659	.533
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

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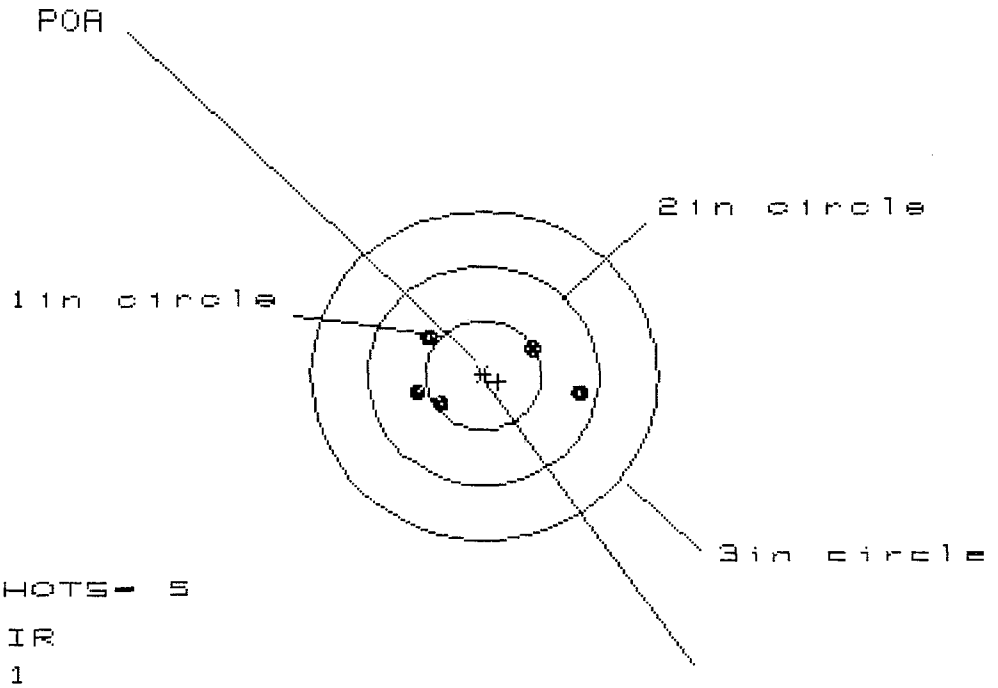
CENTERFIRE PATTERNS # 7 B7511233

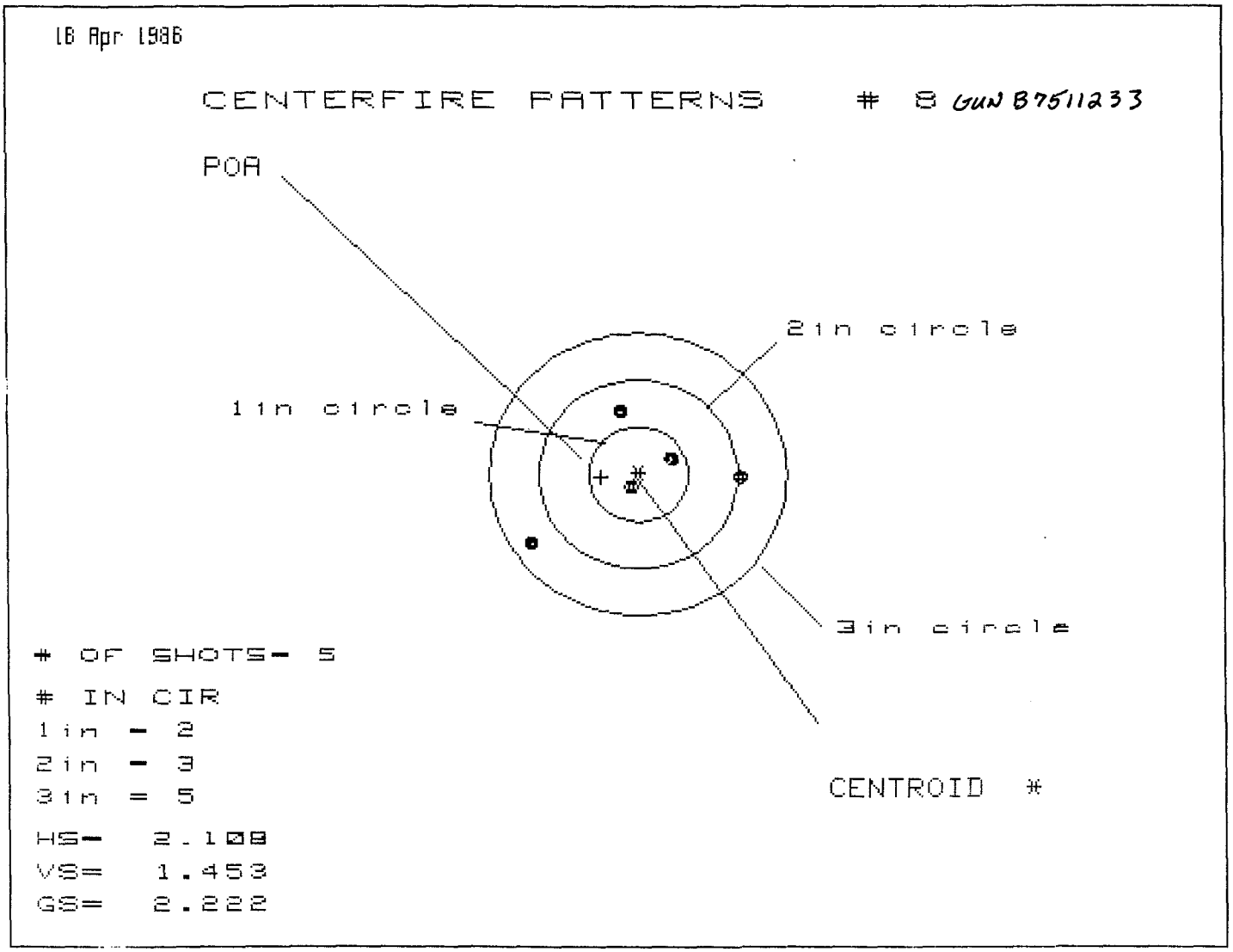


OF SHOTS= 5

# IN CIR
1in = 1
2in = 5
3in = 5

HS= 1.374
VS= .672
GS 1.437

PATTERN #	7		
SHOTS (BEST OF)	5	4	3
MAXIMUM X	.851	.690	.602
MINIMUM X	-.523	-.310	-.398
MAXIMUM Y	.378	.335	.317
MINIMUM Y	-.294	-.338	-.226
CENTROID X	-.128	-.341	-.253
CENTROID Y	.055	.099	-.013
POA TO CENTROID in.	.139	.355	.254
MIN RADIUS	.442	.357	.305
MEAN RADIUS	.601	.468	.465
MAX RADIUS	.869	.720	.681
HORIZONTAL SPREAD	1.374	1.000	1.000
VERTICAL SPREAD	.672	.672	.543
EXTREME SPREAD	1.437	1.080	1.080
NUMBER IN ONE INCH CIR.		1	
NUMBER IN TWO INCH CIRCLE		5	
NUMBER IN THREE INCH CIRCLE		5	



PATTERN #	:	8		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.052	.787	.337
MINIMUM X	:	-1.056	-.488	-.226
MAXIMUM Y	:	.696	.506	.425
MINIMUM Y	:	-.757	-.268	-.350
CENTROID X	:	.376	.640	.378
CENTROID Y	:	.028	.217	.299
POA TO CENTROID in.	:	.377	.676	.482
MIN RADIUS	:	.135	.075	.345
MEAN RADIUS	:	.722	.516	.398
MAX RADIUS	:	1.300	.824	.482
HORIZONTAL SPREAD	:	2.108	1.276	.563
VERTICAL SPREAD	:	1.453	.775	.775
EXTREME SPREAD	:	2.222	1.480	.783
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	

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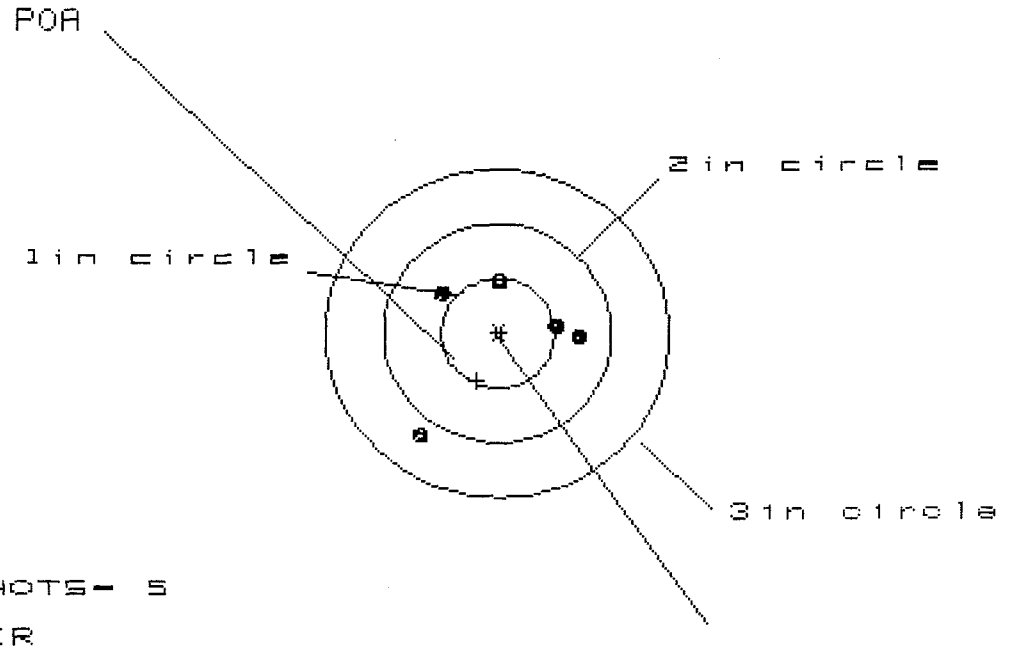
CENTERFIRE PATTERNS # 9 GUN B7511233



OF SHOTS= 5

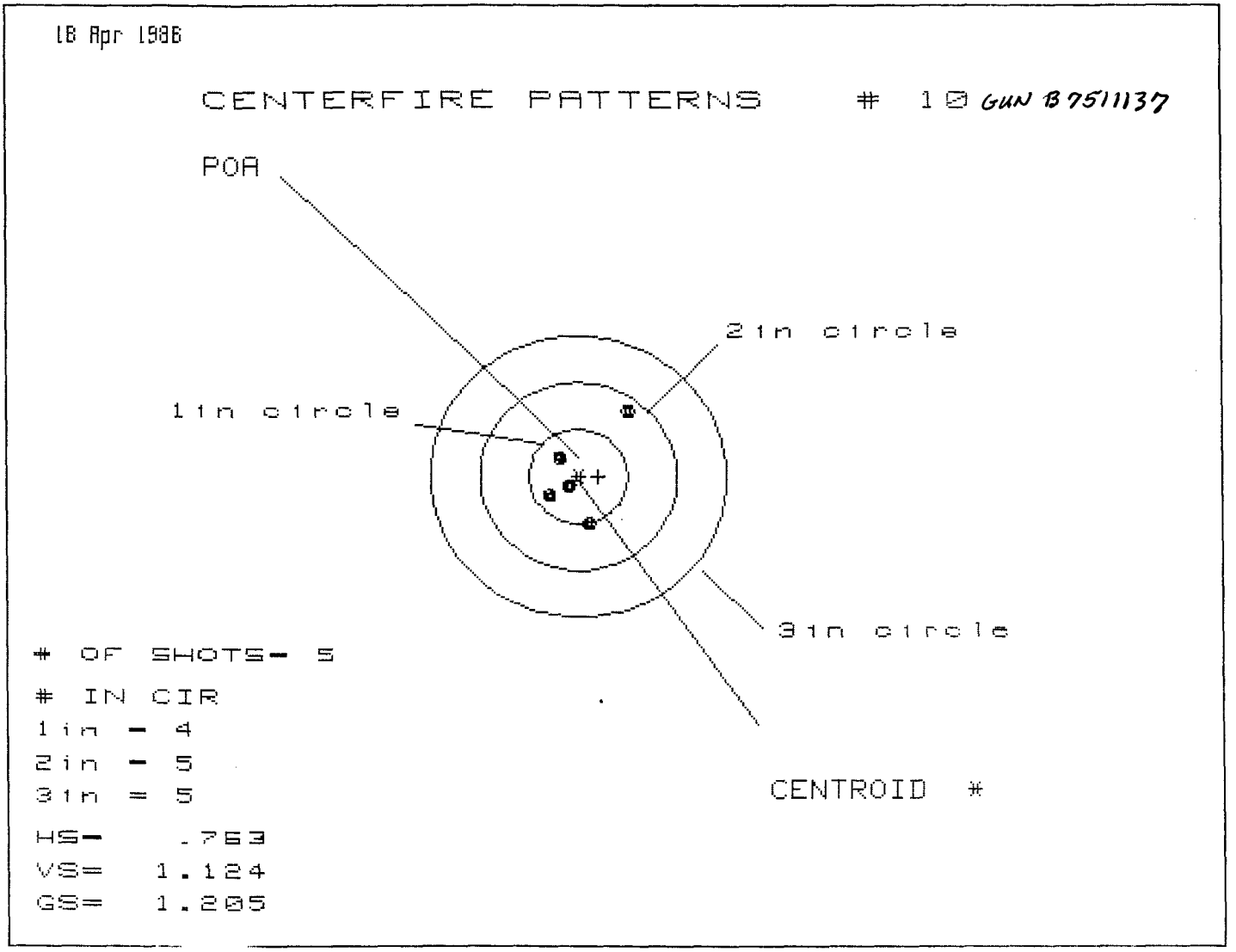
# IN CIR
1in = 0
2in = 4
3in = 5

HS= 1.435
VS= 1.452
GS= 1.722

PATTERN # : 9

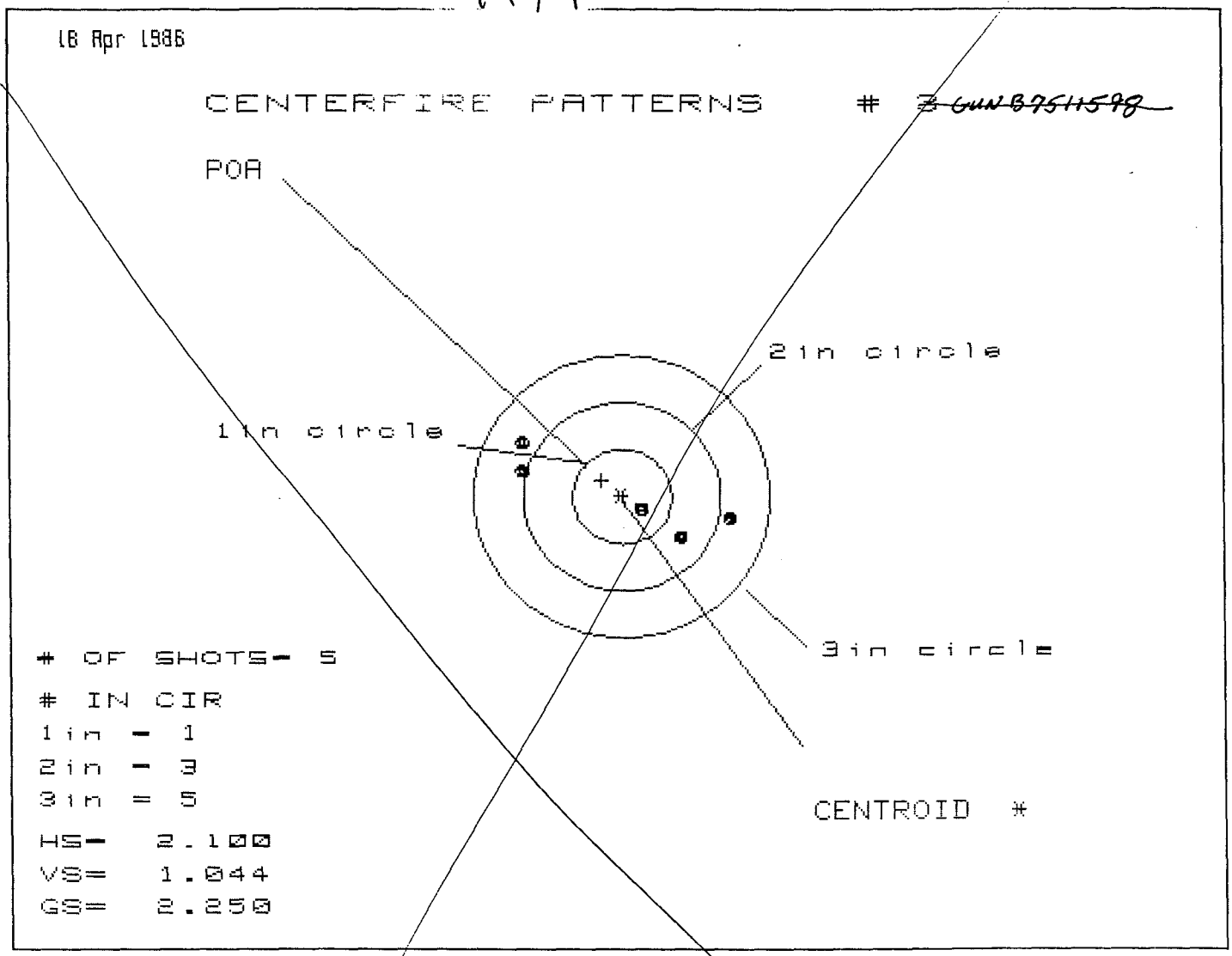
SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.700	.517	.537
MINIMUM X :	-.735	-.696	-.524
MAXIMUM Y :	.505	.268	.191
MINIMUM Y :	-.947	-.232	-.292
CENTROID X :	.192	.375	.203
CENTROID Y :	.430	.667	.744
POA TO CENTROID in.:	.471	.765	.771
MIN RADIUS :	.505	.326	.191
MEAN RADIUS :	.722	.509	.445
MAX RADIUS :	1.199	.719	.611
HORIZONTAL SPREAD :	1.435	.213	1.061
VERTICAL SPREAD :	1.452	.500	.483
EXTREME SPREAD :	1.722	1.280	1.131

NUMBER IN ONE INCH CIRCLE = 0
NUMBER IN TWO INCH CIRCLE = 4
NUMBER IN THREE INCH CIRCLE = 5



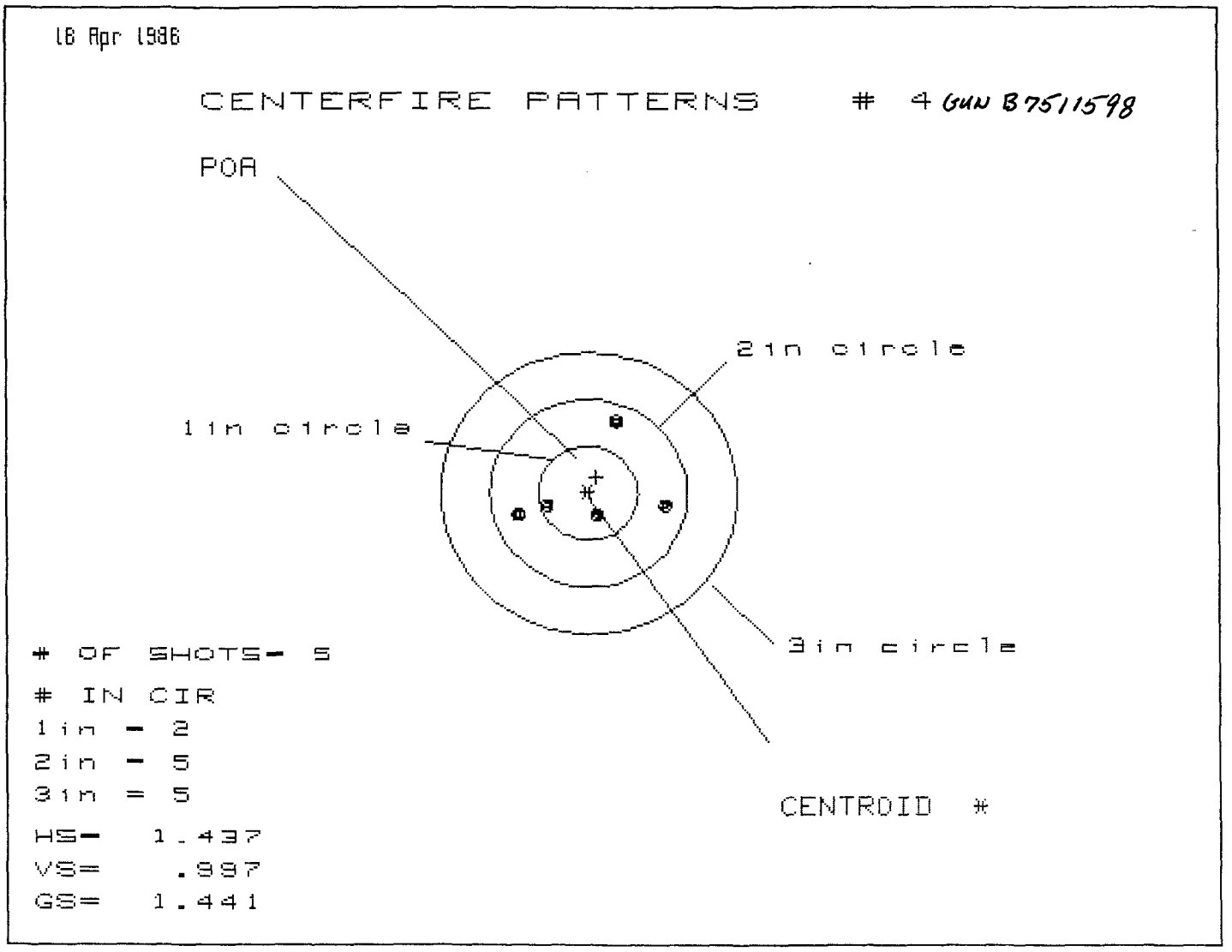
PATTERN #	:	10		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.499	.191	.093
MINIMUM X	:	-.264	-.139	-.076
MAXIMUM Y	:	.656	.359	.258
MINIMUM	:	-.468	-.304	-.180
CENTROID X	:	-.206	-.331	-.394
CENTROID Y	:	0.000	-.164	-.063
POA TO CENTROID in.	:	.206	.369	.399
MIN RADIUS	:	.169	.038	.121
MEAN RADIUS	:	.422	.231	.192
MAX RADIUS	:	.824	.368	.258
HORIZONTAL SPREAD	:	.763	.330	.169
VERTICAL SPREAD	:	1.124	.663	.438
EXTREME SPREAD	:	1.205	.717	.442
NUMBER IN ONE INCH CIRCLE	=		4	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE			5	

SKIP



PATTERN #	:	3		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.115	.869	.652
MINIMUM X	:	-.985	-1.208	-.918
MAXIMUM Y	:	.585	.409	.384
MINIMUM Y	:	-.459	-.312	-.337
CENTROID X	:	.211	.457	.168
CENTROID Y	:	-.175	-.322	-.297
POA TO CENTROID in.	:	.275	.559	.341
MIN RAD' '	:	.279	.032	.270
MEAN RADIUS	:	.864	.664	.666
MAX RADIUS	:	1.146	1.275	.995
HORIZONTAL SPREAD	:	2.100	2.076	1.570
VERTICAL SPREAD	:	1.044	.721	.721
EXTREME SPREAD	:	2.250	2.132	1.728

NUMBER IN ONE INCH CIRCLE = 1
NUMBER IN TWO INCH CIRCLE = 3
NUMBER IN THREE INCH CIRCLE = 5



PATTERN #	:	4		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.733	.797	.453
MINIMUM X	:	-.704	-.640	-.374
MAXIMUM Y	:	.731	.090	.044
MINIMUM Y	:	-.266	-.083	-.053
CENTROID X	:	-.079	-.143	-.409
CENTROID Y	:	-.174	-.357	-.387
POA TO CENTROID in.	:	.191	.385	.563
MIN RADIUS	:	.293	.205	.090
MEAN RADIUS	:	.596	.498	.307
MAX RADIUS	:	.774	.802	.456
HORIZONTAL SPREAD	:	1.437	1.437	.827
VERTICAL SPREAD	:	.997	.173	.097
EXTREME SPREAD	:	1.441	1.441	.829
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

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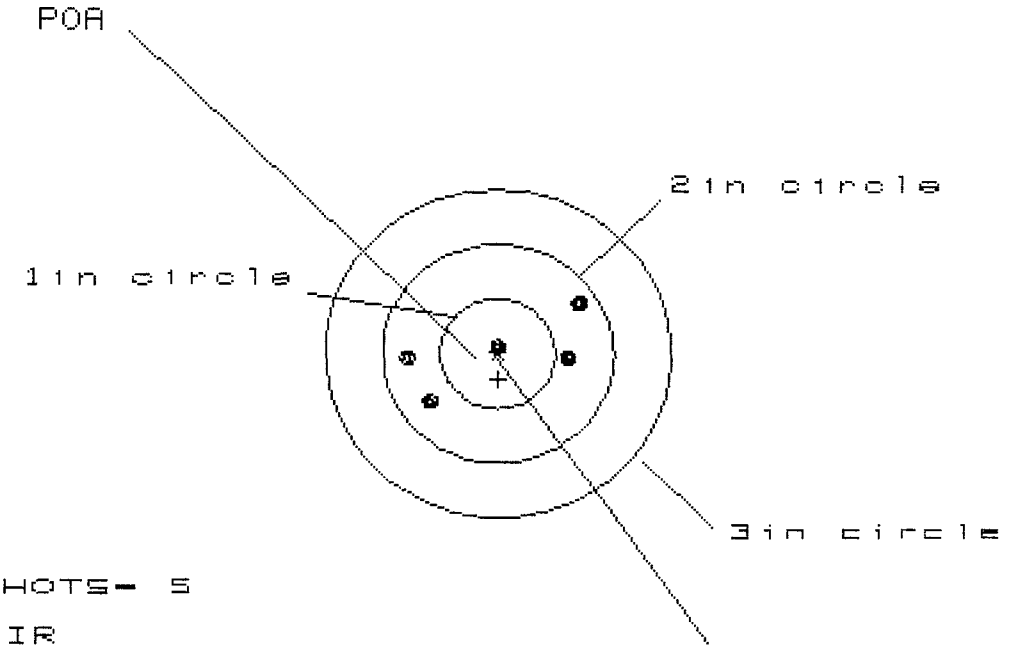
CENTERFIRE PATTERNS # 5 GUN B7511598



OF SHOTS= 5

# IN CIR
1in = 1
2in = 5
3in = 5

HS= 1.545
VS= .851
GS= 1.602

PATTERN #	:	5	
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.742	.791	.585
MINIMUM X	:	-.803	-.618	-.576
MAXIMUM Y	:	.422	.159	.194
MINIMUM Y	:	-.429	-.323	-.288
CENTROID X	:	-.007	-.192	.014
CENTROID Y	:	.237	.131	.096
POA TO CENTROID in.	:	.237	.233	.097
MIN RADIUS	:	.054	.253	.194
MEAN RADIUS	:	.604	.541	.477
MAX RADIUS	:	.853	.793	.644
HORIZONTAL SPREAD	:	1.545	1.409	1.161
VERTICAL SPREAD	:	.851	.482	.482
EXTREME SPREAD	:	1.602	1.410	1.222
NUMBER IN ONE INCH CIRCLE	=	1		
NUMBER IN TWO INCH CIRCLE	=	5		
NUMBER IN THREE INCH CIRCLE	=	5		

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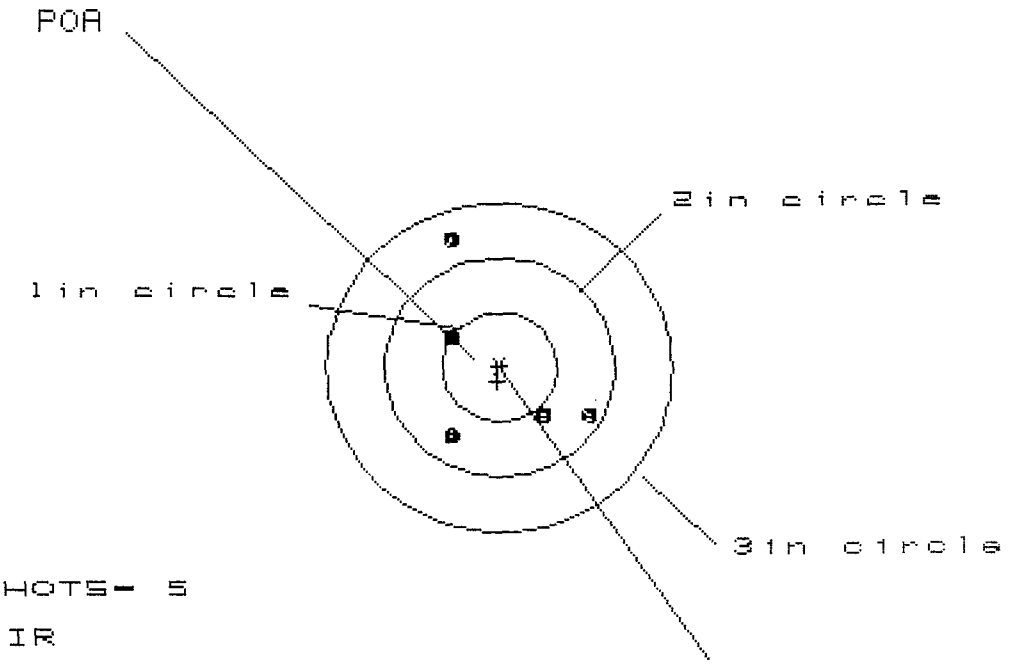
CENTERFIRE PATTERNS # 6 GUN B 751+4861598



OF SHOTS= 5

# IN CIR
1in = 1
2in = 4
3in = 5

HS= 1.179
VS= 1.709
GS= 1.925

PATTERN #	:	6		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.786	.692	.507
MINIMUM X	:	-.393	-.488	-.257
MAXIMUM Y	:	1.129	.534	.493
MINIMUM Y	:	-.580	-.298	-.339
CENTROID X	:	.025	.120	-.111
CENTROID Y	:	.129	-.153	-.112
POA TO CENTROID in.	:	.132	.194	.158
MIN RADIUS	:	.461	.299	.425
MEAN RADIUS	:	.756	.573	.503
MAX RADIUS	:	1.190	.718	.553
HORIZONTAL SPREAD	:	1.179	1.179	.764
VERTICAL SPREAD	:	1.709	.832	.832
EXTREME SPREAD	:	1.925	1.343	.996
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

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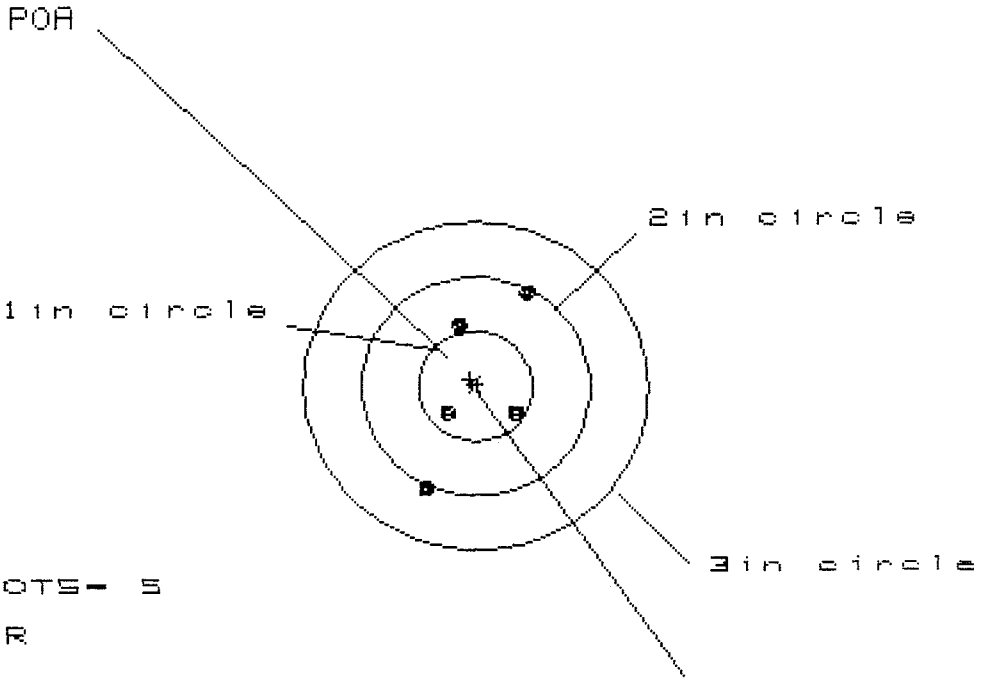
CENTERFIRE PATTERNS # 9 GUN B751+1234+1186



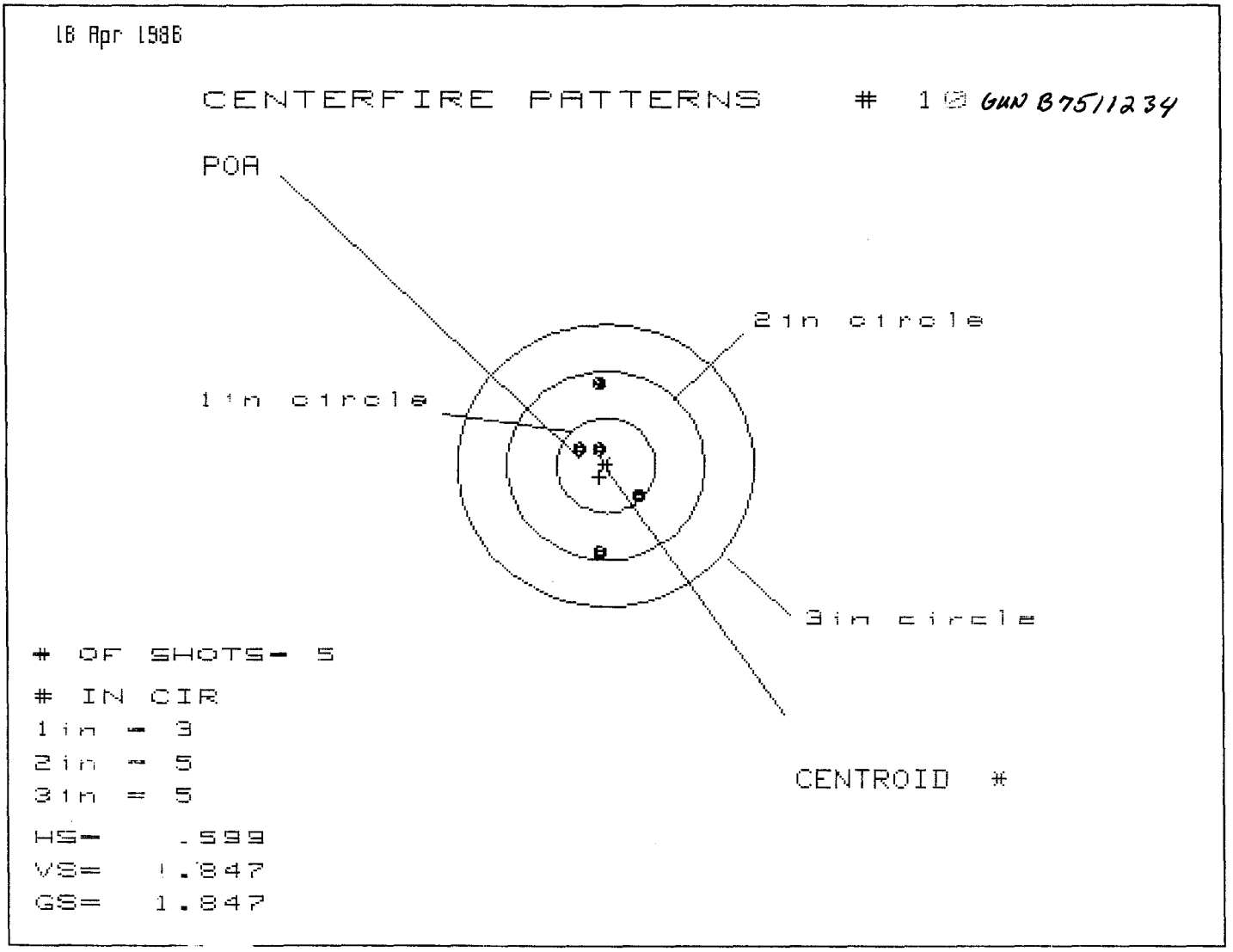
OF SHOTS= 5

# IN CIR
1in = 2
2in = 4
3in = 5

HS= .833
VS= 1.851
GS= 2.030

PATTERN # : 9

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.429	.328	.398
MINIMUM X :	-.404	-.360	-.251
MAXIMUM Y :	.887	.646	.521
MINIMUM Y :	-.964	-.482	-.266
CENTROID X :	.046	.147	.038
CENTROID Y :	-.064	.177	-.039
POA TO CENTROID in.:	.079	.230	.054
MIN RADIUS :	.354	.398	.366
MEAN RADIUS :	.681	.569	.460
MAX RADIUS :	1.045	.724	.541
HORIZONTAL SPREAD :	.833	.688	.649
VERTICAL SPREAD :	1.851	1.128	.787
EXTREME SPREAD :	2.030	1.321	.947
NUMBER IN ONE INCH CIRCLE =		2	
NUMBER IN TWO INCH CIRCLE =		4	
NUMBER IN THREE INCH CIRCLE =		5	



PATTERN #	:	10		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.368	.362	.341
MINIMUM X	:	-.231	-.237	-.258
MAXIMUM Y	:	.885	.644	.185
MINIMUM Y	:	-.962	-.535	-.320
CENTROID X	:	.072	.078	.099
CENTROID Y	:	.123	.364	.149
POA TO CENTROID in.	:	.143	.372	.179
MIN RADIUS	:	.170	.100	.158
MEAN RADIUS	:	.561	.408	.314
MAX RADIUS	:	.963	.647	.467
HORIZONTAL SPREAD	:	.599	.599	.599
VERTICAL SPREAD	:	1.847	1.179	.505
EXTREME SPREAD	:	1.847	1.254	.783
NUMBER IN ONE INCH CIRCLE	=	3		
NUMBER IN TWO INCH CIRCLE	=	5		
NUMBER IN THREE INCH CIRCLE	=	5		

Set 3

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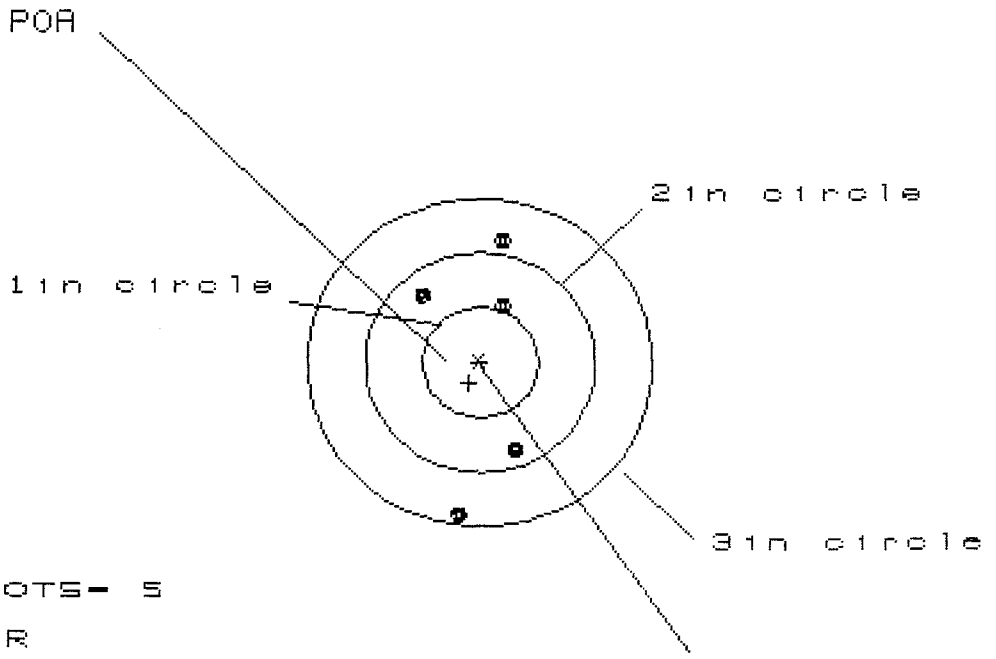
CENTERFIRE PATTERNS # 1 GUN B7511234



OF SHOTS= 5

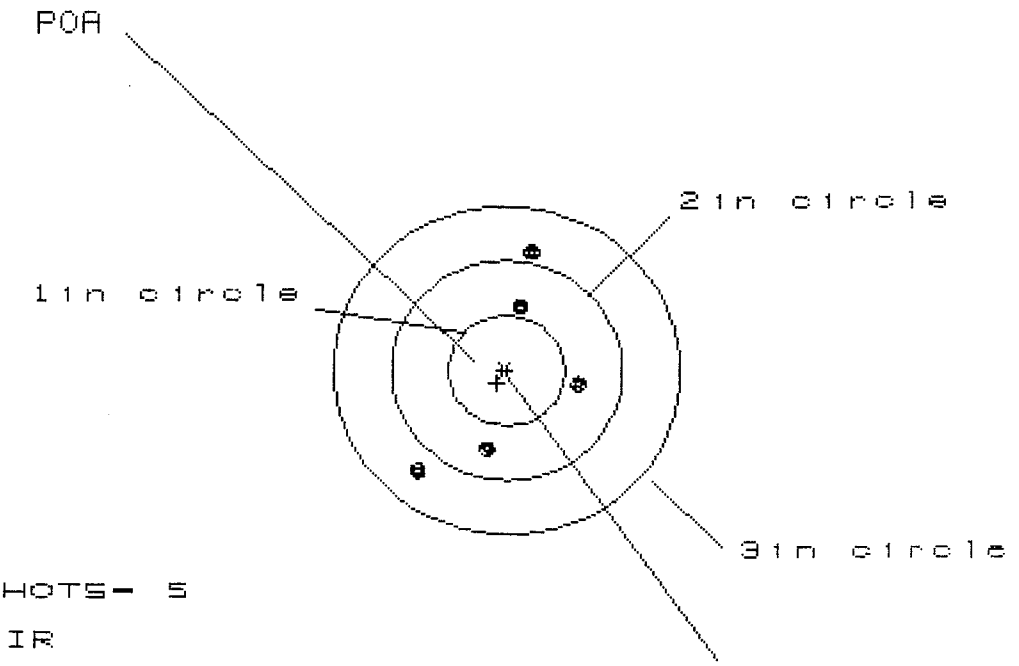
# IN CIR
1in = 0
2in = 3
3in = 5

HS= .735
VS= 2.516
GS= 2.555

PATTERN #	:	1		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.263	.211	.272
MINIMUM X	:	-.472	-.524	-.463
MAXIMUM Y	:	1.086	.728	.532
MINIMUM Y	:	-1.430	-1.164	-.921
CENTROID X	:	.101	.153	.092
CENTROID Y	:	.185	.543	.300
POA TO CENTROID in.	:	.211	.564	.314
MIN RADIUS	:	.535	.195	.433
MEAN RADIUS	:	.948	.682	.700
MAX RADIUS	:	1.445	1.183	.960
HORIZONTAL SPREAD	:	.735	.735	.735
VERTICAL SPREAD	:	2.516	.892	1.453
EXTREME SPREAD	:	2.555	1.892	1.628
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	

16 Apr 1986

CENTERFIRE PATTERNS # 2 GUN B7511234



OF SHOTS= 5

# IN CIR
1in = 0
2in = 3
3in = 5

HS= 1.424
VS= 2.022
GS= 2.258

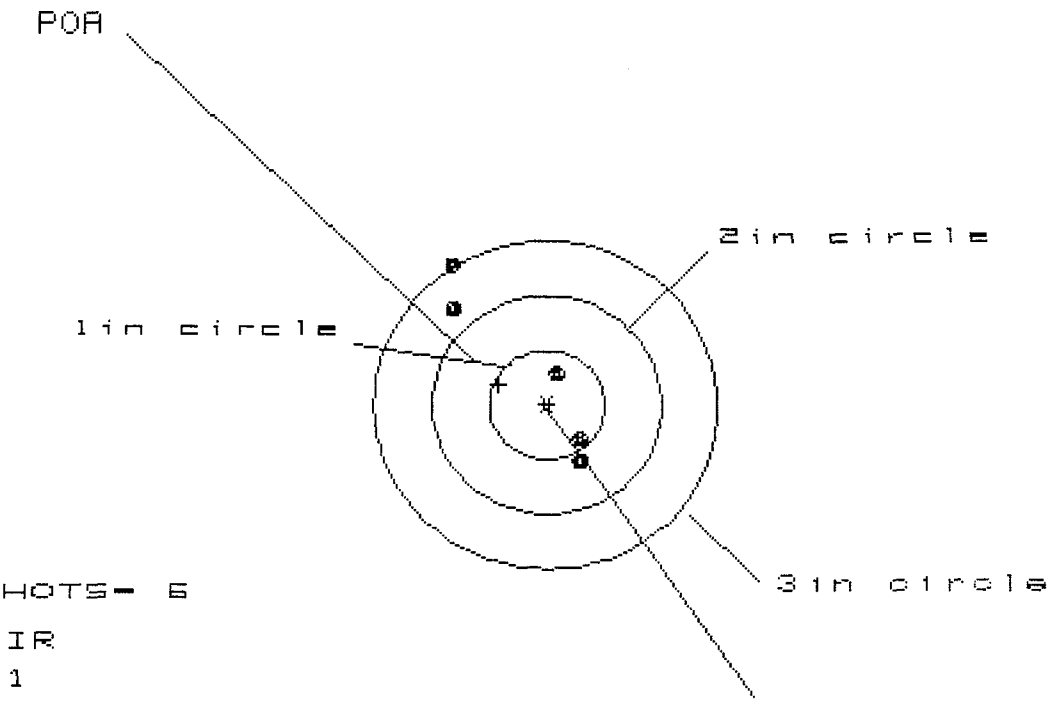
PATTERN # : 2

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.626	.426	.428
MINIMUM X :	-.798	-.380	-.378
MAXIMUM Y :	1.120	.895	.674
MINIMUM Y :	-.902	-.909	-.611
CENTROID X :	.078	.278	.276
CENTROID Y :	.116	.341	.043
POA TO CENTROID in.:	.140	.440	.279
MIN RADIUS :	.619	.379	.433
MEAN RADIUS :	.862	.705	.609
MAX RADIUS :	1.204	.985	.718
HORIZONTAL SPREAD :	1.424	.806	.806
VERTICAL SPREAD :	2.022	1.804	1.285
EXTREME SPREAD :	2.258	1.845	1.326

NUMBER IN ONE INCH CIRCLE = 0
NUMBER IN TWO INCH CIRCLE = 3
NUMBER IN THREE INCH CIRCLE = 5

18 Apr 1918

CENTERFIRE PATTERNS # 3 GUN B751204



OF SHOTS= 6

# IN CIR
1in = 1
2in = 5
3in = 6

HS= 1.105
VS= 1.321
GS= 1.722

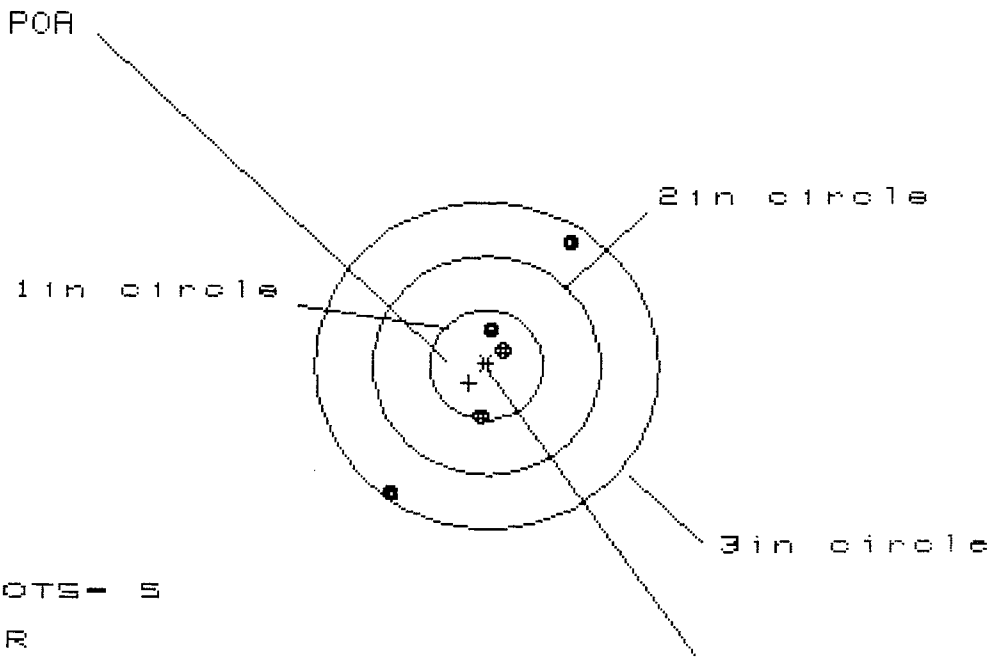
PATTERN # : 3

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.265	.055	.072
MINIMUM X :	-.840	-.141	-.122
MAXIMUM Y :	.858	.511	.428
MINIMUM Y :	-.463	-.248	-.225
CENTROID X :	.418	.628	.609
CENTROID Y :	-.189	-.404	-.321
POA TO CENTROID in.:	.459	.747	.689
MIN RADIUS :	.211	.125	.210
MEAN RADIUS :	.664	.265	.297
MAX RADIUS :	.956	.530	.445
HORIZONTAL SPREAD :	1.105	.196	.194
VERTICAL SPREAD :	1.321	.759	.653
EXTREME SPREAD :	1.722	.784	.681

NUMBER IN ONE INCH CIRCLE = 1
NUMBER IN TWO INCH CIRCLE = 5
NUMBER IN THREE INCH CIRCLE = 6

18 Apr 1986

CENTERFIRE PATTERNS # 4 GUN B751204



OF SHOTS= 5

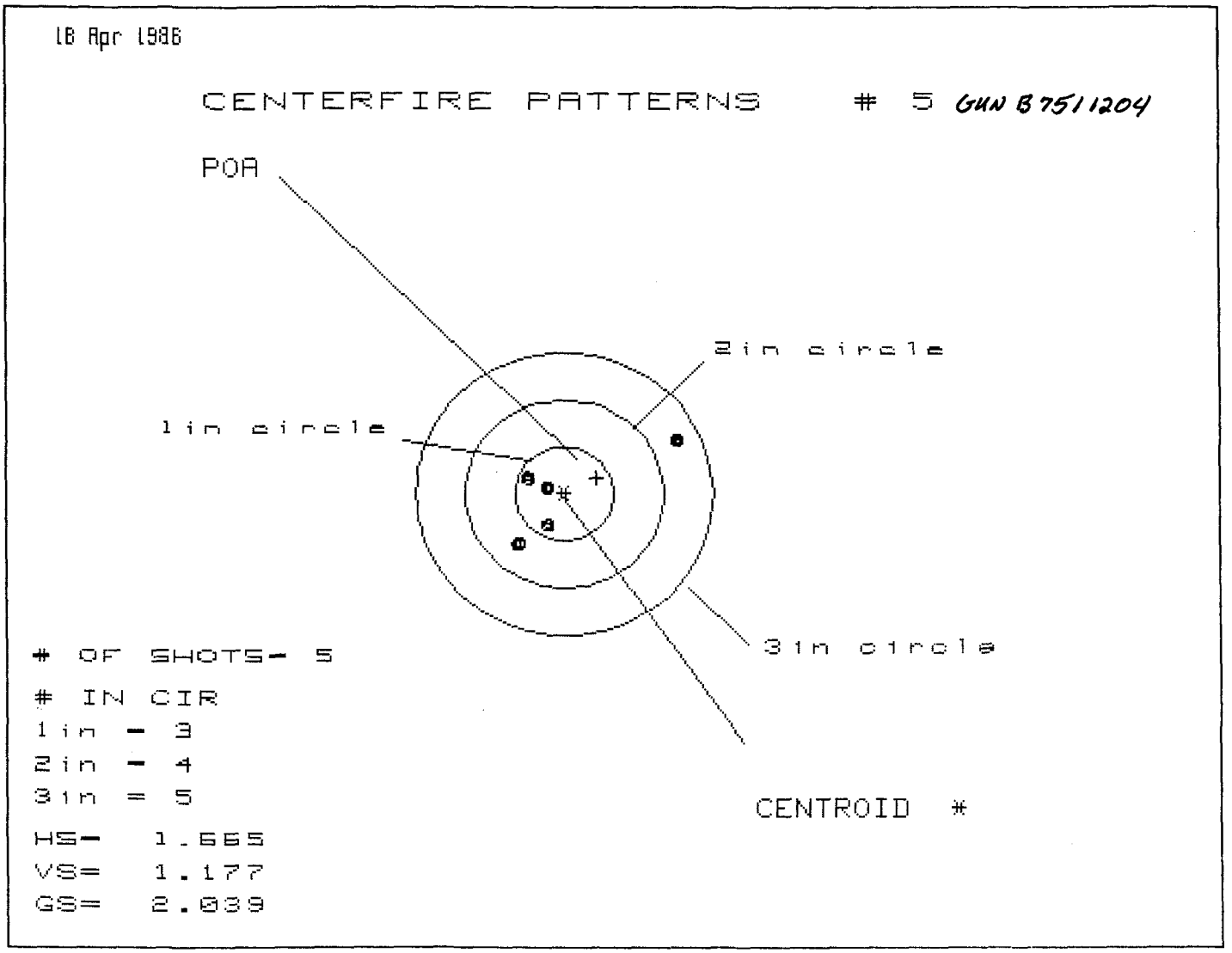
# IN CIR
1in = 3
2in = 3
3in = 5

HS= 1.637
VS= 2.313
GS= 2.834

PATTERN # : 4

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.749	.527	.110
MINIMUM X :	-.888	-.240	-.065
MAXIMUM Y :	1.145	.853	.352
MINIMUM Y :	-1.168	-.766	-.481
CENTROID X :	.157	.379	.204
CENTROID Y :	.164	.456	.171
POA TO CENTROID in.:	.227	.593	.266
MIN RADIUS :	.208	.168	.170
MEAN RADIUS :	.775	.551	.337
MAX RADIUS :	1.467	1.003	.486
HORIZONTAL SPREAD :	1.637	.767	.175
VERTICAL SPREAD :	2.313	1.619	.833
EXTREME SPREAD :	2.834	1.791	.833

NUMBER IN ONE INCH CIRCLE = 3
NUMBER IN TWO INCH CIRCLE = 3
NUMBER IN THREE INCH CIRCLE = 5



PATTERN #	:	5		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.164	.168	.098
MINIMUM X	:	-.501	-.211	-.162
MAXIMUM Y	:	.615	.307	.171
MINIMUM Y	:	-.562	-.408	-.276
CENTROID X	:	-.330	-.620	-.550
CENTROID Y	:	-.169	-.323	-.187
POA TO CENTROID in.	:	.370	.699	.581
MIN RADIUS	:	.180	.219	.123
MEAN RADIUS	:	.596	.319	.217
MAX RADIUS	:	1.316	.459	.293
HORIZONTAL SPREAD	:	1.665	.379	.260
VERTICAL SPREAD	:	1.177	.715	.447
EXTREME SPREAD	:	2.039	.735	.517
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

```
*                                SUMMARY STATISTICS                                *
*                                   ON DATA SET:                                   *
*                              Center fire patterns                                *
```

Subfile: B7511155

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.4093	.8031	.0749	.2736
HORIZONTAL	3	0	5.0160	1.6720	.0894	.2990
VERTICAL	3	0	5.4420	1.8140	1.1426	1.0689
MAX_SPREAD	3	0	6.8214	2.2738	.5791	.7610

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	34.06691	.1[illegible]96	.12817	1.47805
HORIZONTAL	17.88278	.17263	.93439	2.40961
VERTICAL	58.92667	.61715	-.82296	4.45096
MAX_SPREAD	33.46786	.43936	.39649	4.15112

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.[illegible]513	-1.50000
HORIZONTAL	.70240	-1.50000
VERTICAL	.00000	-1.50000
MAX_SPREAD	-.11547	-1.50000

Subfile: B7511217

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.1735	.7245	.1690	.4110
HORIZONTAL	3	0	5.0040	1.6680	1.2408	1.1139
VERTICAL	3	0	3.8270	1.2757	.5601	.7484
MAX_SPREAD	3	0	5.9299	1.9766	1.0673	1.0331

VARIABLE	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	56.73468	.23732	-.28951	1.73852
HORIZONTAL	66.78148	.64312	-1.07994	4.41594
VERTICAL	58.66756	.43209	-.57058	3.12192
MAX_SPREAD	52.26480	.59645	-.57190	4.52515

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.15763	-1.50000
HORIZONTAL	-.39294	-1.50000
VERTICAL	.62145	-1.50000
MAX_SPREAD	.10092	-1.50000

Subfile: B7511233

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.0449	.6816	.0049	.0702
HORIZONTAL	3	0	4.9170	1.6390	.1659	.4073
VERTICAL	3	0	3.5770	1.1923	.2031	.4506
MAX_SPREAD	3	0	5.3813	1.7938	.1579	.3974

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	10.30316	.04055	.50838	.85489
HORIZONTAL	24.85110	.23516	.63420	2.64380
VERTICAL	37.79330	.26017	.08068	2.30398
MAX_SPREAD	22.15497	.22944	.81339	2.77413

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	-.79705	-1.50000
HORIZONTAL	.68931	-1.50000
VERTICAL	-.70710	-1.50000
MAX_SPREAD	.32062	-1.50000

Subfile: B7511137

BASIC STATISTICS

VARIABLE

NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	1.7636	.5879	.0668	.2584
HORIZONTAL	3	0	4.6240	1.5413	1.5101	1.2289
VERTICAL	3	0	3.5690	1.1897	.0127	.1129
MAX_SPREAD	3	0	5.7018	1.9006	1.3445	1.1595

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	43.95702	.14919	-.04961	1.22531
HORIZONTAL	79.72738	.70949	-1.49018	4.57284
VERTICAL	9.48779	.06517	.91122	1.46812
MAX_SPREAD	61.00985	.66946	-.95992	4.76110

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.69287	-1.50000
HORIZONTAL	.69680	-1.50000
VERTICAL	.70704	-1.50000
MAX_SPREAD	.70541	-1.50000

Subfile: B7511598

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	1.9558	.6519	.0081	.0900
HORIZONTAL	3	0	4.1610	1.3870	.0354	.1881
VERTICAL	3	0	3.5570	1.1857	.2107	.4591
MAX_SPREAD	3	0	4.9675	1.6558	.0606	.2462

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	13.80021	.05194	.42999	.87388
HORIZONTAL	13.55827	.10857	.92309	1.85091
VERTICAL	38.71757	.26504	.05320	2.31813
MAX_SPREAD	14.86884	.14215	1.04847	2.26321

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.70879	-1.50000
HORIZONTAL	-.45396	-1.50000
VERTICAL	.62750	-1.50000
MAX_SPREAD	.38511	-1.50000

Subfile: B7511186

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.1277	.7092	.0008	.0279
HORIZONTAL	3	0	3.7620	1.2540	.2448	.4948
VERTICAL	3	0	5.0230	1.6743	.0315	.1775
MAX_SPREAD	3	0	5.7471	1.9157	.0099	.0997

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	3.93336	.01611	.64042	.77806
HORIZONTAL	39.45725	.28567	.03338	2.47462
VERTICAL	10.60158	.10248	1.23644	2.11223
MAX_SPREAD	5.20205	.05754	1.66985	2.16153

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	-.87731	-1.50000
HORIZONTAL	.42148	-1.50000
VERTICAL	-.01723	-1.50000
MAX_SPREAD	.45471	-1.50000

Subfile: B7511234

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.3706	.7902	.0414	.2035
HORIZONTAL	3	0	2.7580	.9193	.1956	.4423
VERTICAL	3	0	6.3850	2.1283	.1204	.3469
MAX_SPREAD	3	0	6.6597	2.2199	.1262	.3553

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIM	UPPER LIMIT
MEAN_RAD.	25.74798	.11747	.28828	1.29213
HORIZONTAL	48.11231	.25537	-.17182	2.01048
VERTICAL	16.30122	.20031	1.27245	2.98422
MAX_SPREAD	16.00470	.20513	1.34343	3.09637

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	-.55714	-1.50000
HORIZONTAL	.63264	-1.50000
VERTICAL	.51016	-1.50000
MAX_SPREAD	-.19243	-1.50000

Subfile: B7511204

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.0356	.6785	.0082	.0906
HORIZONTAL	3	0	4.4070	1.4690	.0996	.3155
VERTICAL	3	0	4.8110	1.6037	.3825	.6185
MAX_SPREAD	3	0	6.5949	2.1983	.3279	.5726

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	13.34862	.05229	.45510	.90199
HORIZONTAL	21.48019	.18218	.69058	2.24742
VERTICAL	38.56822	.35709	.07786	3.12947
MAX_SPREAD	26.04704	.33059	.78576	3.61085

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.28337	-1.50000
HORIZONTAL	-.70085	-1.50000
VERTICAL	.66423	-1.50000
MAX_SPREAD	.47153	-1.50000

Box # 12

XP-100
223 Rem
8609112
T & P Evaluation
Measurements - Accuracy

Report to Sed for proofreading 4/21/86

BARBER - PRESALE R 0136014

RD-69-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

*"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"*_____

cc: W.H. Coleman, II/File
J.W. Bower
J.G. Hill
J.R. Snedeker
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 860972

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

ABSTRACT:

Research and Development finds the Trial and Pilot Evaluation of the Model XP-100 .223 REM caliber to be acceptable. However, the following should be investigated, by production:

1. During the Visual inspection all of the pistols were found to have some random spots of glue, and the stock luster was mismatched. More care needs to be taken during the assembly of the stocks.

Prepared by: F.L. SUPRY
Date Prepared: 4/18/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab _____

W.H. COLEMAN, II
New Products Research Lab Director _____

REP.#860972 W.O.# 925C0805

MODEL XP-100 .223 REM. CALIBER TRIAL AND PILOT EVALUATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

On April 07, 1986 a request to conduct a Trial and Pilot Evaluation on the Model XP-100 .223 REM. caliber pistol was received by the Test Lab. The evaluation would use eight guns, withdrawn from the warehouse, and consist of Visual Inspection, and 100 Yard Accuracy.

SCOPE OF TEST:

To determine if the production run samples meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the .223 REM. caliber, was found to be acceptable in all phases of the Trial and Pilot Evaluation.

REPORT TEXT:

1. VISUAL INSPECTION:

A. The visual inspection committee found no major items in the appearance of the pistols inspected.

B. The following general comments were made in overall reference to the pistols:

a. The luster of the pistols needs improvement.

b. The removing of the excess glue needs improvement.

C. The pistols used in the visual inspection were:

B7511233	B7511217	B7511204
B7511234	B7511598	B7511186

D. Comments recorded for each individual pistol are located in the appendix of this report.

2. ACCURACY:

A. Eight (8) pistols were tested for 100 yard accuracy.

B7511233	B7511217	B7511204	B7511137
B7511234	B7511598	B7511186	B7511155

B. The following averages were established:

a. Group Size: 1.99 inches

b. Horizontal Spread: 1.42 inches

c. Vertical Spread: 1.51 inches

B. Accuracy results per individual pistol are located in the appendix of this report.

TEST PROCEDURE:

1. VISUAL INSPECTION:

A. The Visual Inspection Committee consisted of W. Warren, (Q.C.); R. Howe, F. Supry, and T. Douglas, (Research).

B. Six (6) of the eight (8) pistols were used for the visual inspection.

C. Each pistol was wiped down with a clean white Coyne towel, and examined by each member of the Visual Inspection Committee. All comments were recorded.

D. Following the visual inspection, headspace and trigger pull measurements were taken on all eight pistols.

2. ACCURACY:

A. The accuracy was shot by T. Douglas, J. Ronkainen, and K. Calkins, (Research), at the R & D 100 yard range.

B. Leupold bases (standard long action) and Leupold one (1) inch rings were used, in conjunction with a Redfield 12X scope.

C. Remington ammunition, index R223R2; code U08-002301, 55 grain hollow point, was used for the 100 yard accuracy test.

E. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

F. A total of three (3), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

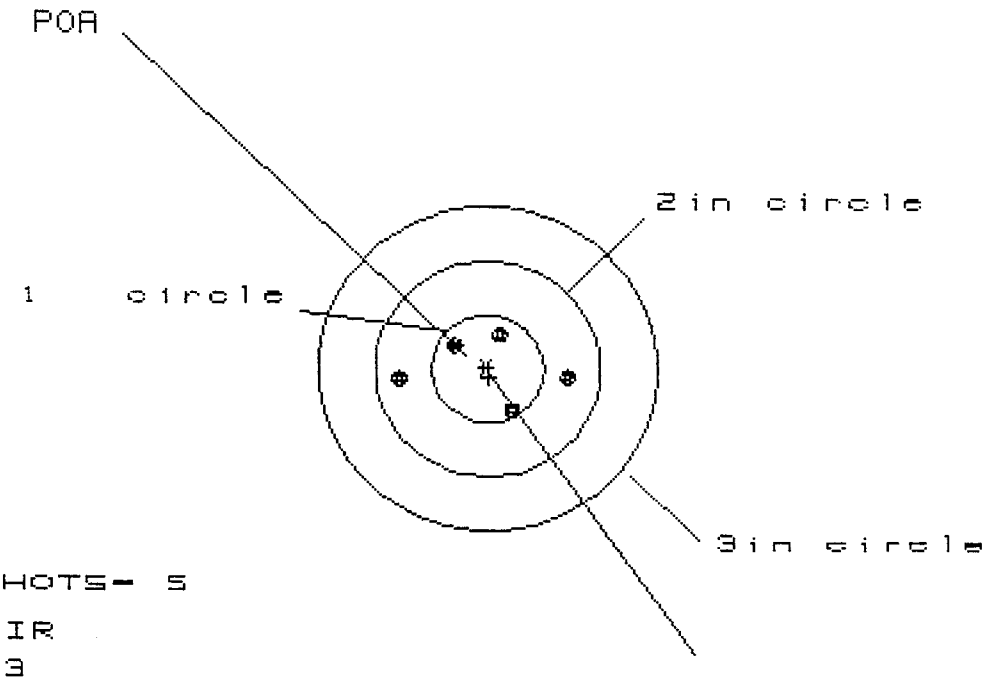
G. The patterns were analyzed for group size, horizontal spread, and vertical spread, using the HP 9000 computer. The averages were calculated for each pistol.

APPENDIX

GROUP 1

18 Apr 1986

CENTERFIRE PATTERNS # 1 GUN B 7511155

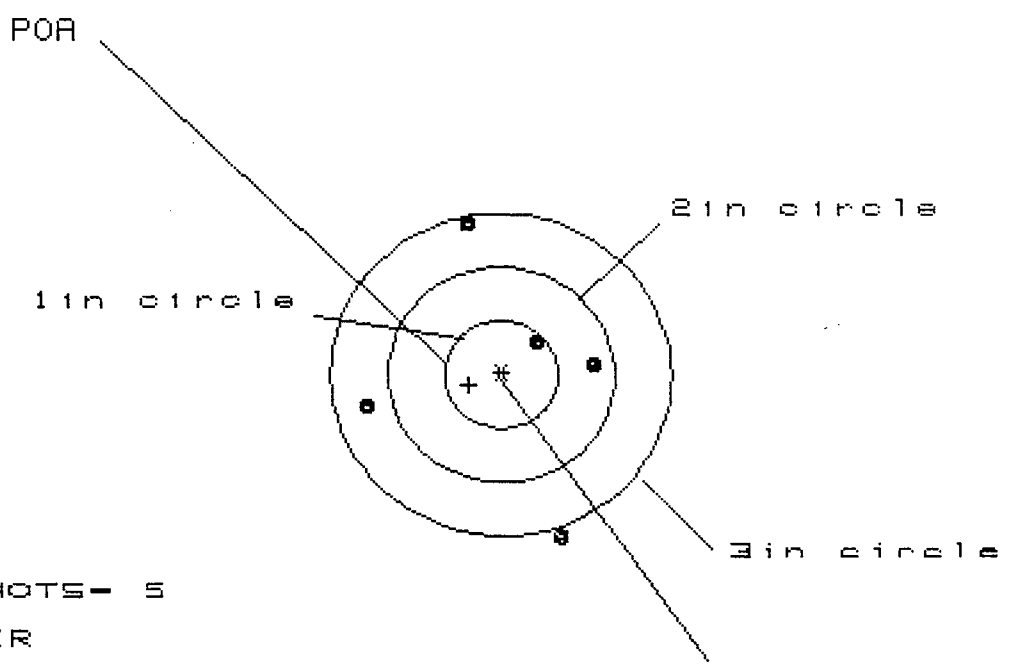


# SHOTS= 5
# IN CIR
1in = 3
2in = 5
3in = 5
HS= 1.488
VS= .763
GS= 1.490

PATTERN # :	1		
SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.693	.494	.216
MINIMUM Y :	-.795	-.498	-.333
MAXIMUM :	.360	.352	.313
MINIMUM Y :	-.403	-.411	-.450
CENTROID X :	-.011	.188	.023
CENTROID Y :	.081	.089	.128
POA TO CENTROID in.:	.081	.208	.130
MIN RADIUS :	.352	.355	.334
MEAN RADIUS :	.543	.451	.398
MAX RADIUS :	.796	.528	.499
HORIZONTAL SPREAD :	1.488	.992	.549
VERTICAL SPREAD :	.763	.763	.763
EXTREME SPREAD :	1.490	1.035	.804
NUMBER IN ONE INCH CIRCLE =		3	
NUMBER IN TWO INCH CIRCLE		5	
NUMBER IN THREE INCH CIRCLE		5	

18 Apr 1986

CENTERFIRE PATTERNS # 2 GUN B 7511155



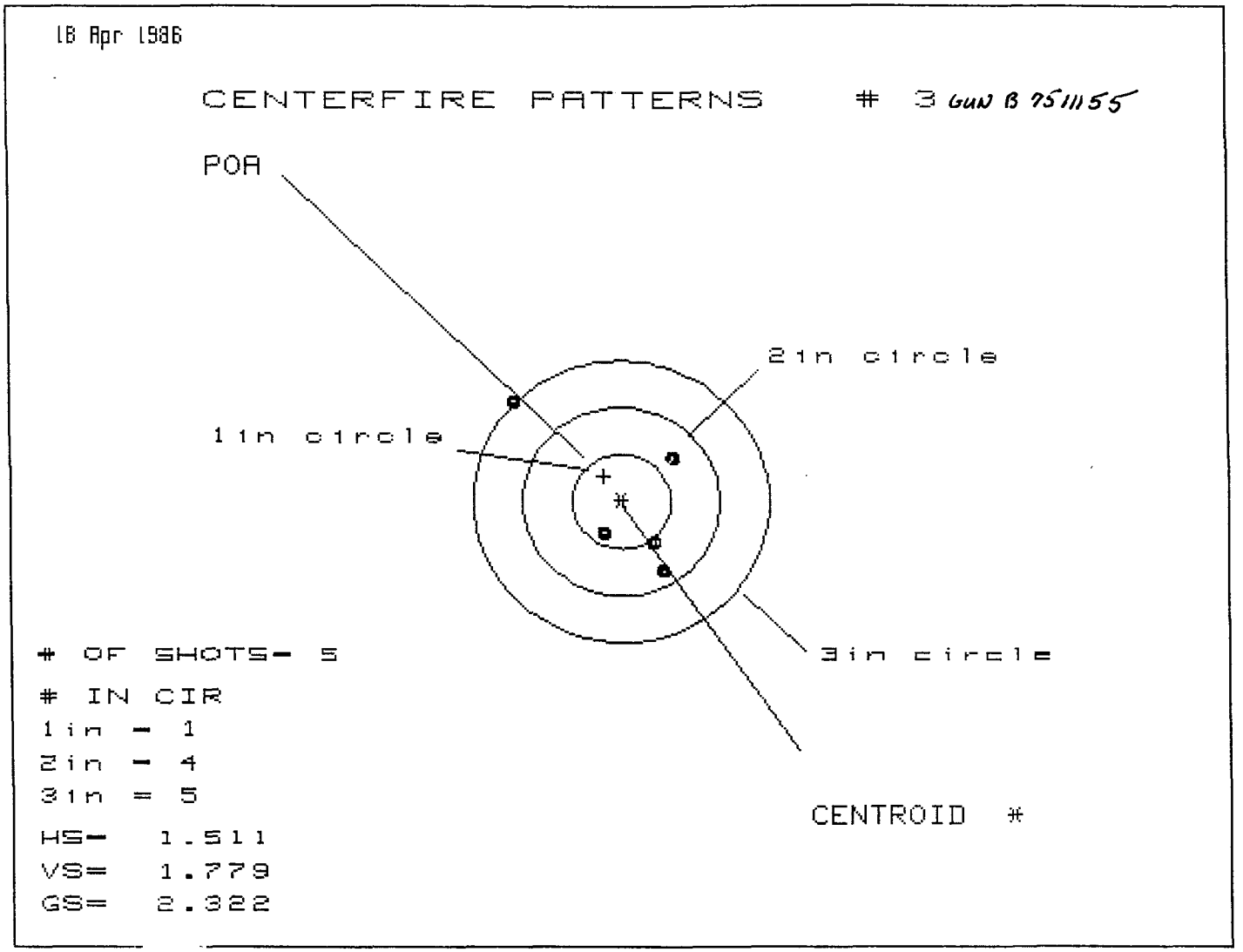
OF SHOTS= 5

# IN CIR
1in = 1
2in = 2
3in = 4

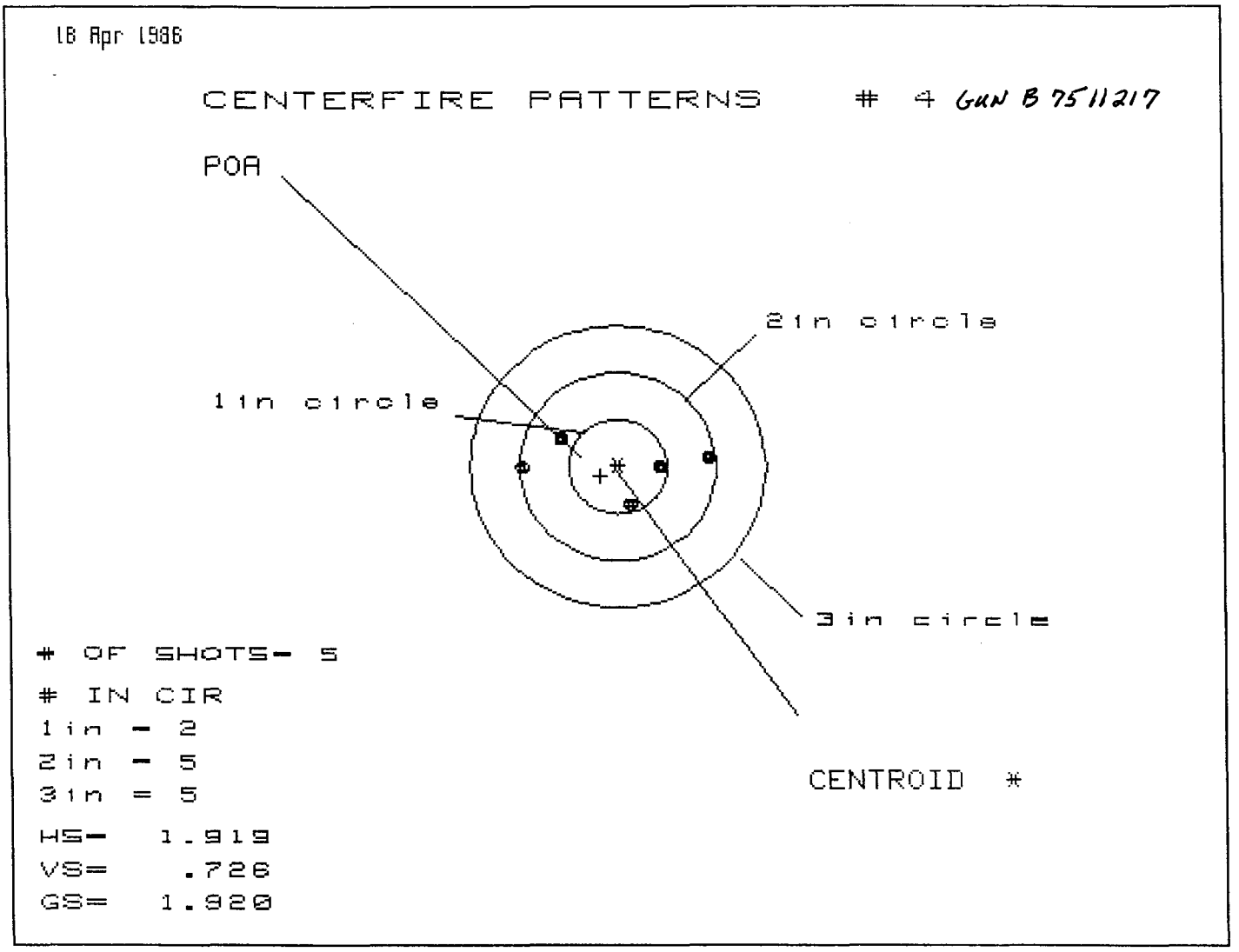
HS= 2.017
VS= 2.900
GS= 3.010

PATTERN #	:	2		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.797	.918	.850
MINIMUM X	:	-1.220	-1.100	-1.167
MAXIMUM Y	:	1.400	1.024	.243
MINIMUM Y	:	-1.500	-.630	-.289
CENTROID X	:	.287	.167	.234
CENTROID Y	:	.096	.471	.130
POA TO CENTROID in.	:	.303	.500	.267
MIN RADIUS	:	.382	.396	.399
MEAN RADIUS	:	1.088	.918	.817
MAX RADIUS	:	1.576	1.267	1.202
HORIZONTAL SPREAD	:	2.017	2.017	2.017
VERTICAL SPREAD	:	2.900	1.655	.532
EXTREME SPREAD	:	3.010	2.045	2.045

NUMBER IN ONE INCH CIRCLE = 1
NUMBER IN TWO INCH CIRCLE = 2
NUMBER IN THREE INCH CIRCLE = 4



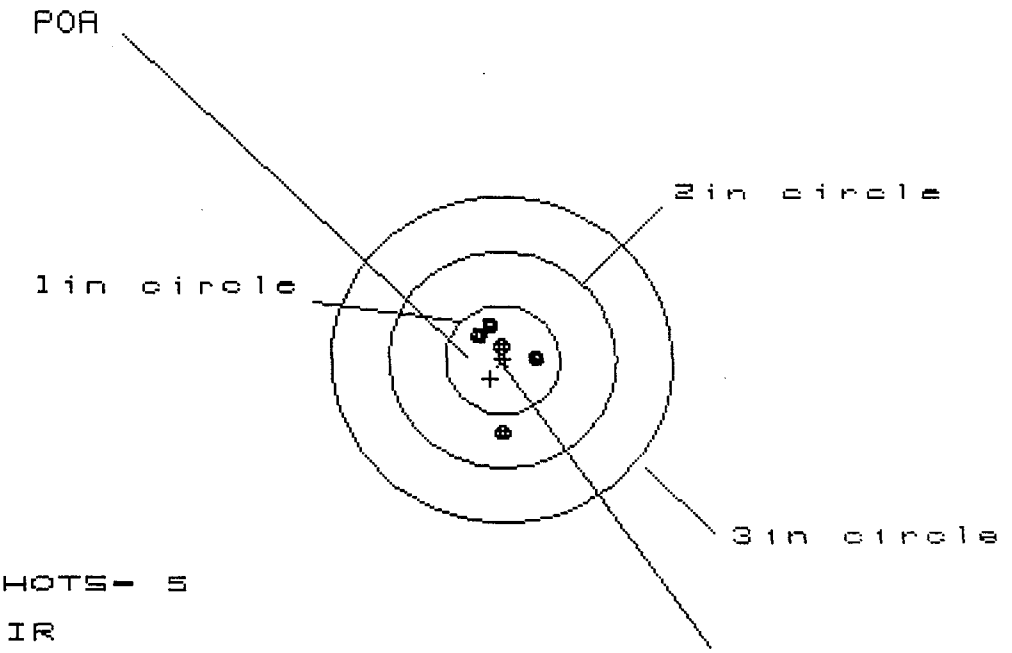
PATTERN #	:	3		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.474	.214	.279
MINIMUM X	:	-1.037	-.419	-.354
MAXIMUM Y	:	1.073	.707	.561
MINIMUM Y	:	-.706	-.438	-.338
CENTROID X	:	.182	.442	.377
CENTROID Y	:	-.268	-.536	-.390
POA TO CENTROID in.	:	.324	.695	.542
MIN RADIUS	:	.381	.192	.346
MEAN RADIUS	:	.778	.459	.464
MAX RADIUS	:	1.492	.739	.627
HORIZONTAL SPREAD	:	1.511	.633	.633
VERTICAL SPREAD	:	1.779	1.145	.899
EXTREME SPREAD	:	2.322	1.145	1.008
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	4		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.959	.652	.412
MINIMUM X	:	-.960	-.720	-.579
MAXIMUM Y	:	.308	.332	.356
MINIMUM Y	:	-.418	-.394	-.370
CENTROID X	:	.177	-.063	.177
CENTROID Y	:	.099	.075	.051
POA TO CENTROID in.	:	.203	.098	.184
MIN RADIUS	:	.414	.475	.406
MEAN RADIUS	:	.689	.604	.499
MAX RADIUS	:	.964	.724	.680
HORIZONTAL SPREAD	:	1.919	1.372	.991
VERTICAL SPREAD	:	.726	.726	.726
EXTREME SPREAD	:	1.920	1.374	1.048
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

18 Apr 1986

CENTERFIRE PATTERNS # 5 GUN B 7511217

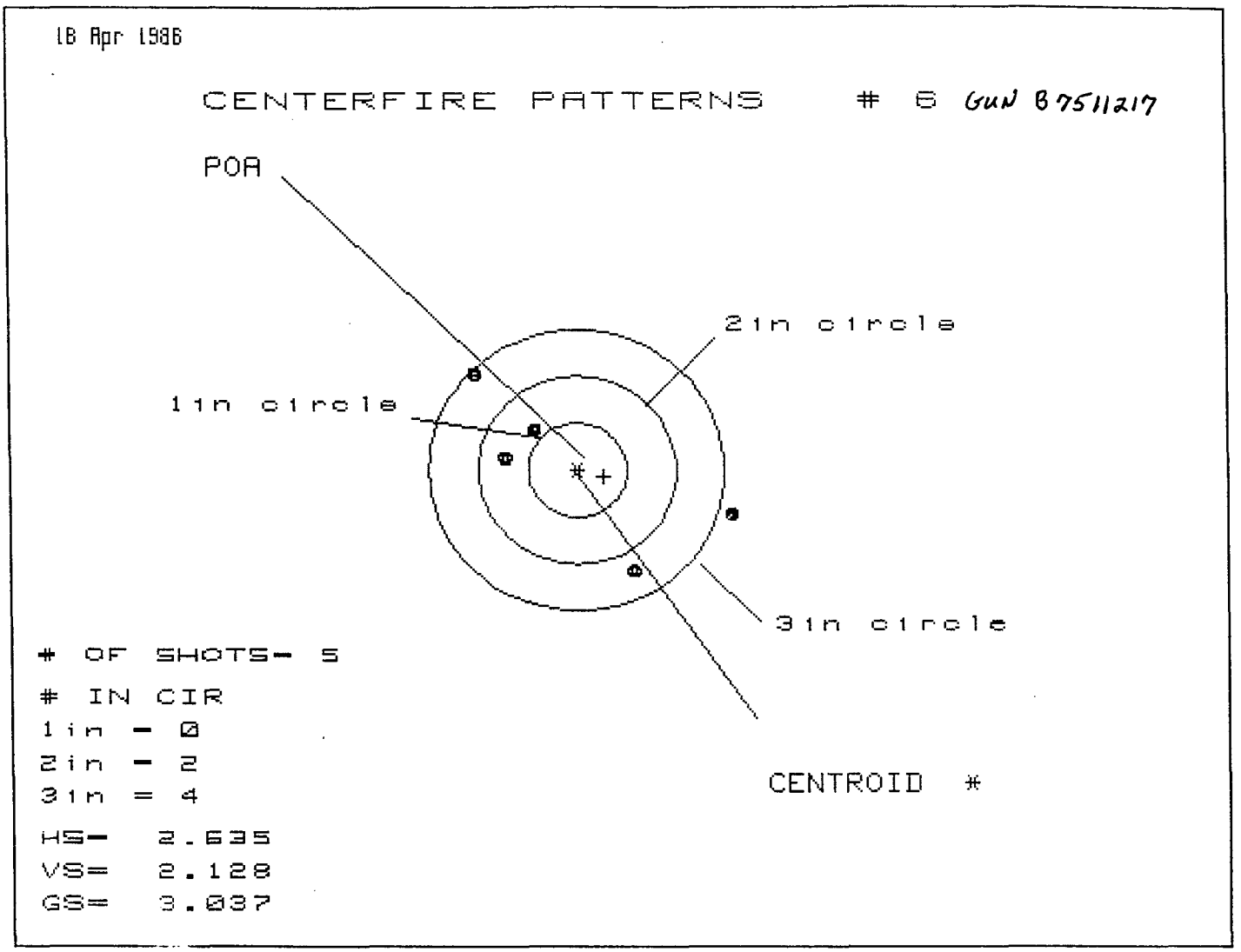


OF SHOTS= 5

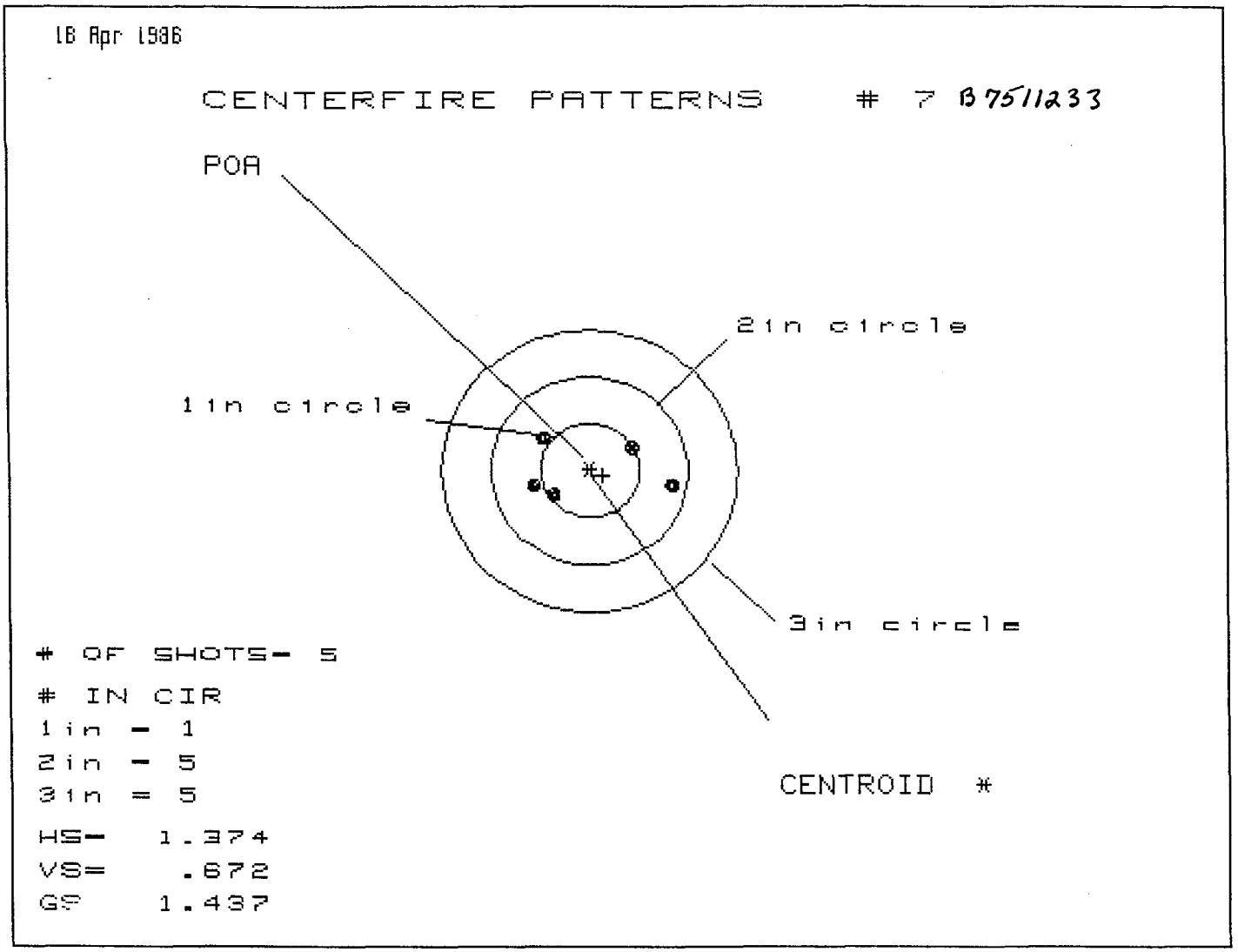
# IN CIR
1in = 4
2in = 5
3in = 5

HS= .450
VS= .973
GS= .973

PATTERN #	:	5		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.288	.278	.253
MINIMUM X	:	-.162	-.173	-.197
MAXIMUM Y	:	.317	.153	.124
MINIMUM Y	:	-.656	-.165	-.115
CENTROID X	:	.107	.118	.142
CENTROID Y	:	.174	.338	.288
POA TO CENTROID in.	:	.205	.358	.321
MIN RADIUS	:	.106	.069	.057
MEAN RADIUS	:	.332	.187	.189
MAX RADIUS	:	.658	.323	.278
HORIZONTAL SPREAD	:	.450	.450	.450
VERTICAL SPREAD	:	.973	.318	.239
EXTREME SPREAD	:	.973	.510	.510
NUMBER IN ONE INCH CIRCLE	=		4	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	6		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.592	1.011	.796
MINIMUM X	:	-1.043	-.645	-.556
MAXIMUM Y	:	1.016	.892	.621
MINIMUM Y	:	-1.112	-1.236	-.938
CENTROID X	:	-.266	-.663	-.448
CENTROID Y	:	.069	.193	-.105
POA TO CENTROID in.	:	.274	.691	.460
MIN RADIUS	:	.616	.324	.640
MEAN RADIUS	:	1.152	.841	.845
MAX RADIUS	:	1.667	1.597	1.231
HORIZONTAL SPREAD	:	2.635	1.657	1.352
VERTICAL SPREAD	:	2.128	2.128	1.559
EXTREME SPREAD	:	3.037	2.697	1.872
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		2	
NUMBER IN THREE INCH CIRCLE	=		4	



PATTERN #	:	7		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.851	.690	.602
MINIMUM X	:	-.523	-.310	-.398
MAXIMUM Y	:	.378	.335	.317
MINIMUM Y	:	-.294	-.338	-.226
CENTROID X	:	-.128	-.341	-.253
CENTROID Y	:	.055	.099	-.013
POA TO CENTROID in.	:	.139	.355	.254
MIN RADIUS	:	.442	.357	.305
MEAN RADIUS	:	.601	.468	.465
MAX RADIUS	:	.869	.720	.681
HORIZONTAL SPREAD	:	1.374	1.000	1.000
VERTICAL SPREAD	:	.672	.672	.543
EXTREME SPREAD	:	1.437	1.080	1.080
NUMBER IN ONE INCH CIRCLE			1	
NUMBER IN TWO INCH CIRCLE			5	
NUMBER IN THREE INCH CIRCLE			5	

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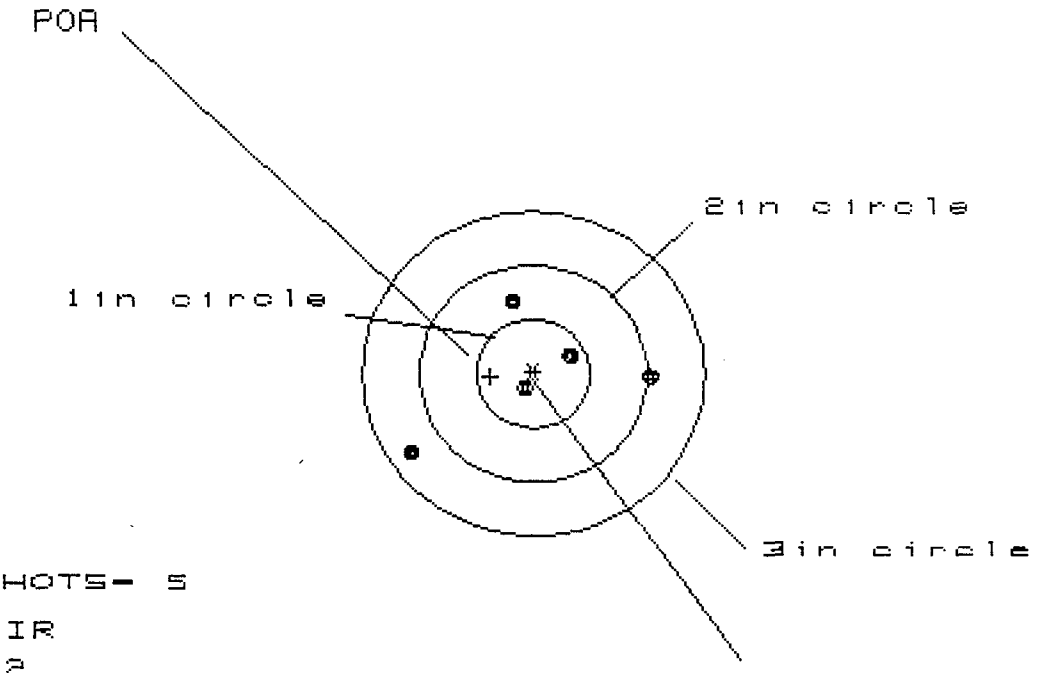
CENTERFIRE PATTERNS # 8 GUN B7511233



OF SHOTS= 5

# IN CIR
1in = 2
2in = 3
3in = 5

HS= 2.108
VS= 1.453
GS= 2.222

PATTERN #	:	8		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.052	.787	.337
MINIMUM X	:	-1.056	-.488	-.226
MAXIMUM Y	:	.696	.506	.425
MINIMUM Y	:	-.757	-.268	-.350
CENTROID X	:	.376	.640	.378
CENTROID Y	:	.028	.217	.299
POA TO CENTROID in.	:	.377	.676	.482
MIN RADIUS	:	.135	.075	.345
MEAN RADIUS	:	.722	.516	.398
MAX RADIUS	:	1.300	.824	.482
HORIZONTAL SPREAD	:	2.108	1.276	.563
VERTICAL SPREAD	:	1.453	.775	.775
EXTREME SPREAD	:	2.222	1.480	.783
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	

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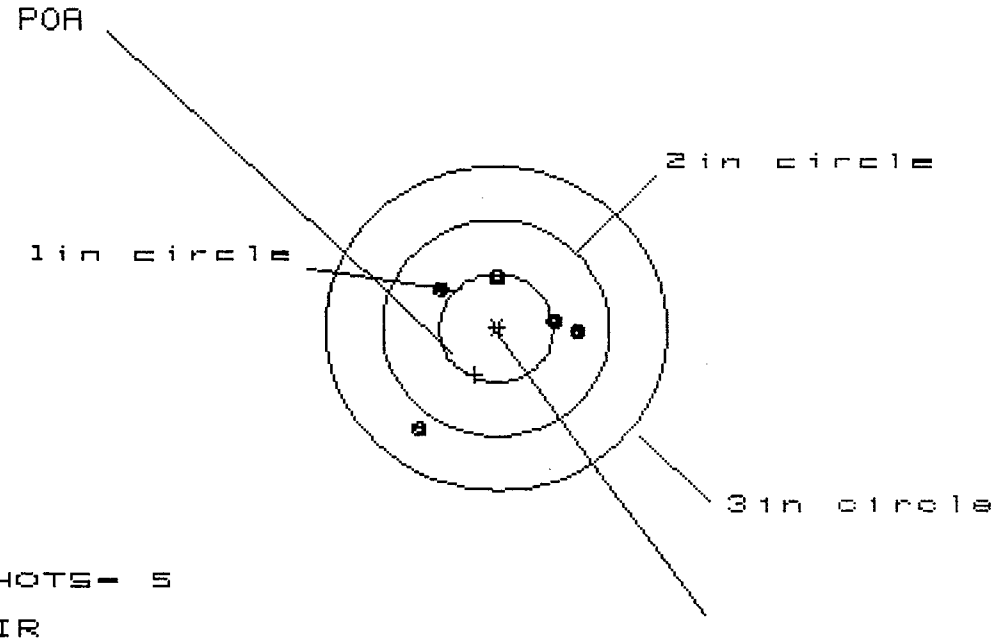
CENTERFIRE PATTERNS # 9 GUN B7511233

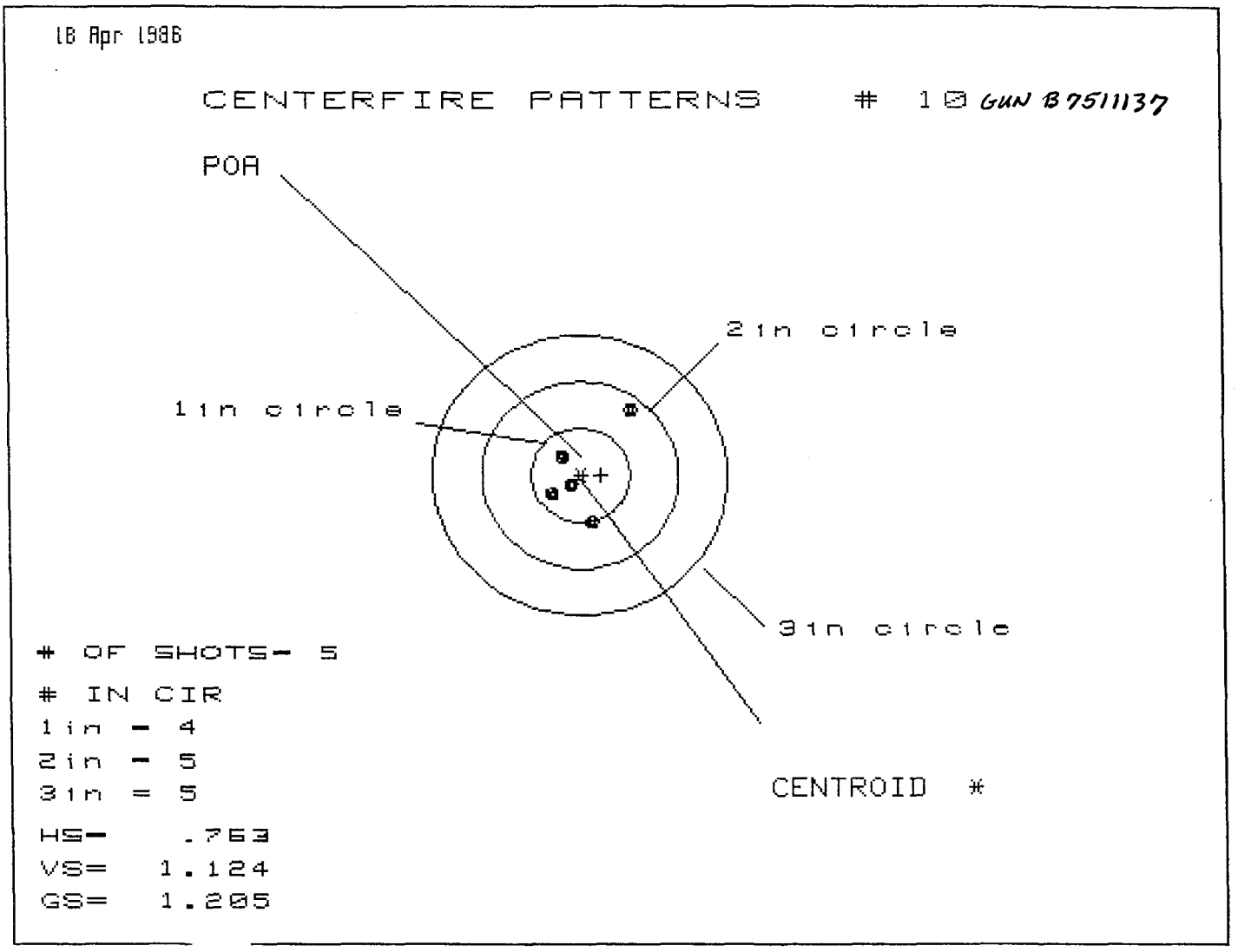


OF SHOTS= 5

# IN CIR
1in = 0
2in = 4
3in = 5

HS= 1.435
VS= 1.452
GS= 1.722

PATTERN #	:	9		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.700	.517	.537
MINIMUM X	:	-.735	-.696	-.524
MAXIMUM Y	:	.505	.268	.191
MINIMUM Y	:	-.947	-.232	-.292
CENTROID X	:	.192	.375	.203
CENTROID Y	:	.430	.667	.744
POA TO CENTROID in.	:	.471	.765	.771
MIN RADIUS	:	.505	.326	.191
MEAN RADIUS	:	.722	.509	.445
MAX RADIUS	:	1.199	.719	.611
HORIZONTAL SPREAD	:	1.435	1.213	1.061
VERTICAL SPREAD	:	1.452	.500	.483
EXTREME SPREAD	:	1.722	1.280	1.131
NUMBER IN ONE INCH CIRCLE	=		0	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN # : 10

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.499	.191	.093
MINIMUM X :	-.264	-.139	-.076
MAXIMUM Y :	.656	.359	.258
MINIMUM :	-.468	-.304	-.180
CENTROID X :	-.206	-.331	-.394
CENTROID Y :	0.000	-.164	-.063
POA TO CENTROID in.:	.206	.369	.399
MIN RADIUS :	.169	.038	.121
MEAN RADIUS :	.422	.231	.192
MAX RADIUS :	.824	.368	.258
HORIZONTAL SPREAD :	.763	.330	.169
VERTICAL SPREAD :	1.124	.663	.438
EXTREME SPREAD :	1.205	.717	.442
NUMBER IN ONE INCH CIRCLE =		4	
NUMBER IN TWO INCH CIRCLE =		5	
NUMBER IN THREE INCH CIRCL		5	

 Group 2

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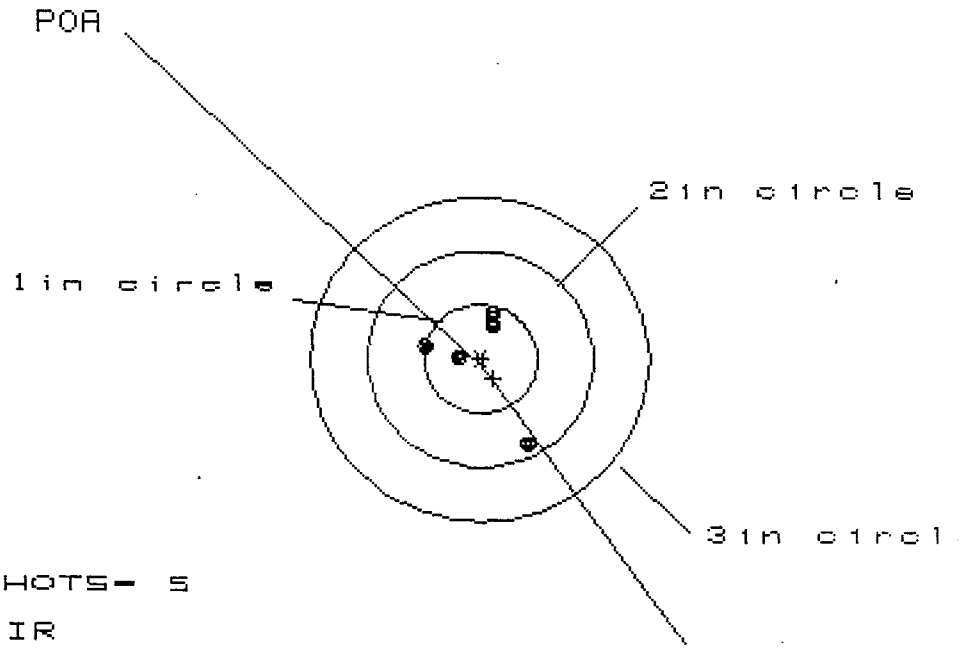
CENTERFIRE PATTERNS # 1 GUN B7511137

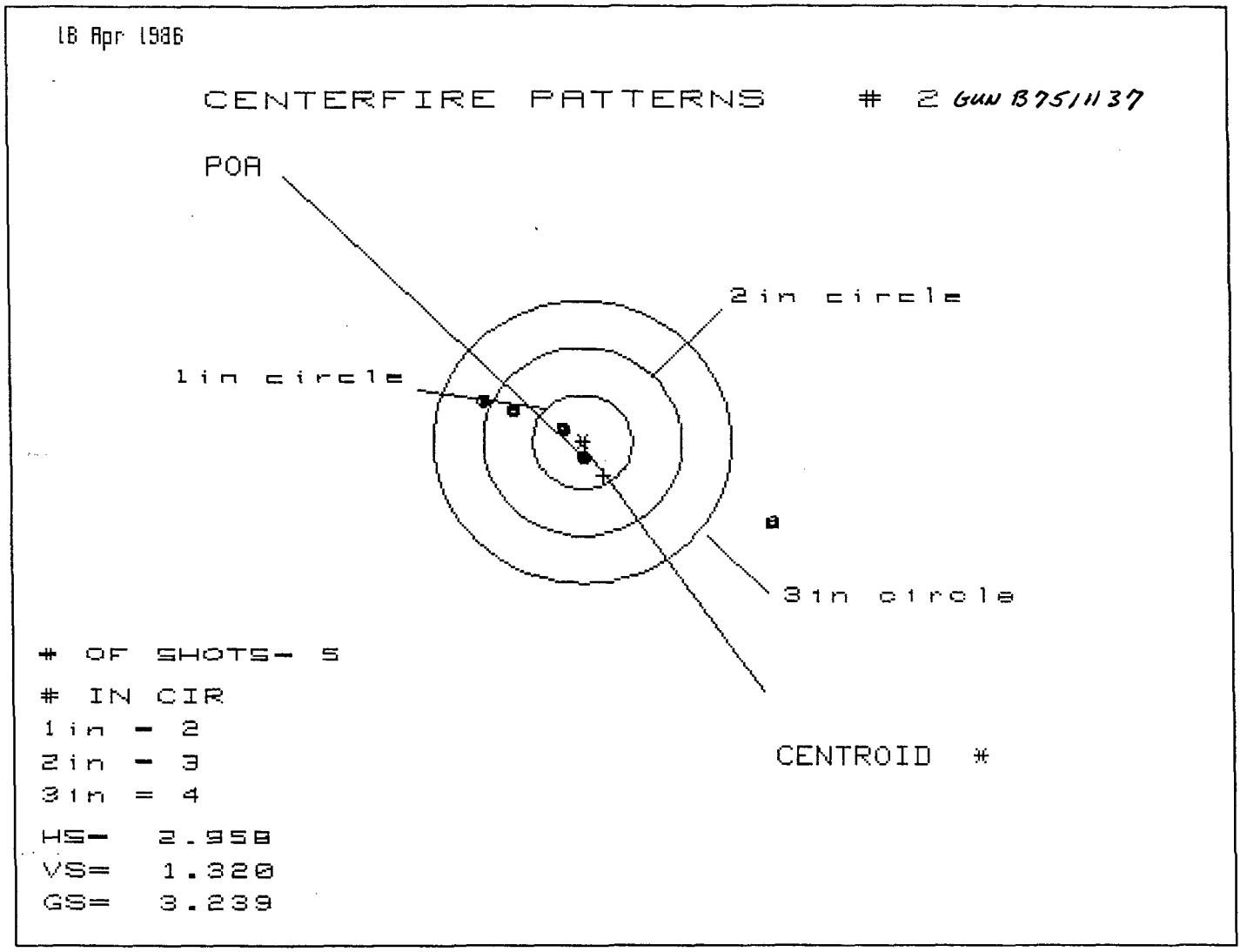


OF SHOTS= 5

# IN CIR
1in = 4
2in = 5
3in = 5

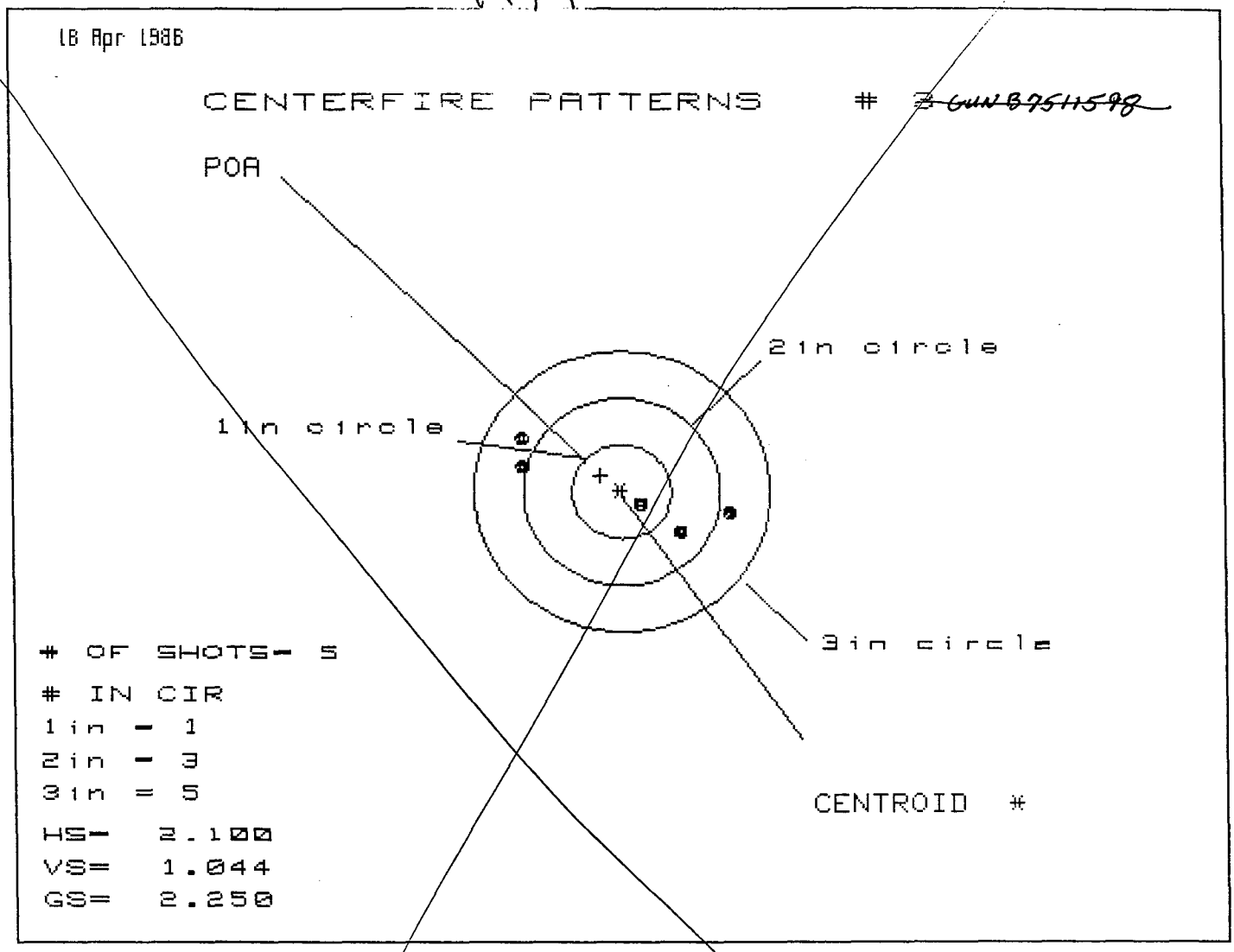
HS= .903
VS= 1.125
GS= 1.258

PATTERN #	:	1		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.439	.256	.138
MINIMUM X	:	-.464	-.354	-.247
MAXIMUM Y	:	.369	.180	.156
MINIMUM Y	:	-.756	-.190	-.213
CENTROID X	:	-.109	-.219	-.101
CENTROID Y	:	.182	.371	.395
POA TO CENTROID in.	:	.213	.431	.407
MIN RADIUS	:	.239	.229	.122
MEAN RADIUS	:	.456	.286	.219
MAX RADIUS	:	.875	.361	.326
HORIZONTAL SPREAD	:	.903	.610	.385
VERTICAL SPREAD	:	1.125	.369	.369
EXTREME SPREAD	:	1.258	.659	.533
NUMBER IN ONE INCH CIRCLE	=		4	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	2		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.939	.460	.282
MINIMUM X	:	-1.019	-.534	-.384
MAXIMUM Y	:	.481	.271	.246
MINIMUM Y	:	-.839	-.363	-.273
CENTROID X	:	-.206	-.691	-.513
CENTROID Y	:	.362	.572	.482
POA TO CENTROID in.	:	.417	.897	.704
MIN RADIUS	:	.155	.258	.105
MEAN RADIUS	:	.886	.433	.318
MAX RADIUS	:	2.113	.599	.456
HORIZONTAL SPREAD	:	2.958	.994	.666
VERTICAL SPREAD	:	1.320	.634	.519
EXTREME SPREAD	:	3.239	1.179	.844
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		4	

SKIP



PATTERN #	:	3		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.115	.869	.652
MINIMUM X	:	-.985	-1.208	-.918
MAXIMUM Y	:	.585	.409	.384
MINIMUM Y	:	-.459	-.312	-.337
CENTROID X	:	.211	.457	.168
CENTROID Y	:	-.175	-.322	-.297
POA TO CENTROID in.	:	.275	.559	.341
MIN RADIUS	:	.279	.032	.270
MEAN RADIUS	:	.864	.664	.666
MAX RADIUS	:	1.146	1.275	.995
HORIZONTAL SPREAD	:	2.100	2.076	1.570
VERTICAL SPREAD	:	1.044	.721	.721
EXTREME SPREAD	:	2.250	2.132	1.728
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	

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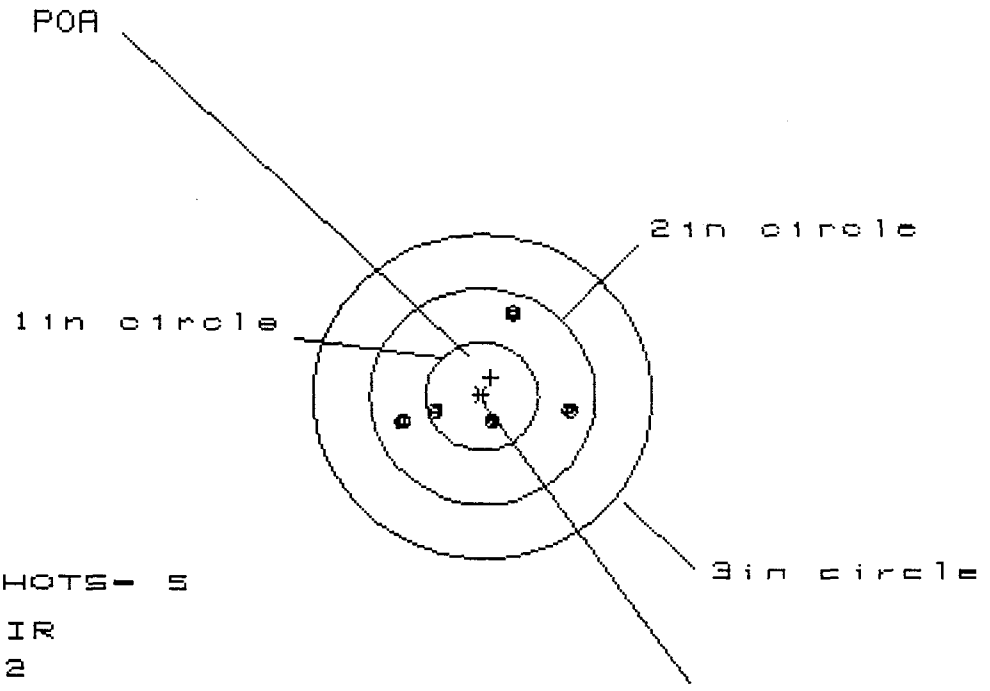
CENTERFIRE PATTERNS # 4 GUN B7511598



# OF SHOTS= 5
# IN CIR
1in = 2
2in = 5
3in = 5
HS= 1.437
VS= .997
GS= 1.441

PATTERN #	:	4		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.733	.797	.453
MINIMUM X	:	-.704	-.640	-.374
MAXIMUM Y	:	.731	.090	.044
MINIMUM Y	:	-.266	-.083	-.053
CENTROID X	:	-.079	-.143	-.409
CENTROID Y	:	-.174	-.357	-.387
POA TO CENTROID in.	:	.191	.385	.563
MIN RADIUS	:	.293	.205	.090
MEAN RADIUS	:	.596	.498	.307
MAX RADIUS	:	.774	.802	.456
HORIZONTAL SPREAD	:	1.437	1.437	.827
VERTICAL SPREAD	:	.997	.173	.097
EXTREME SPREAD	:	1.441	1.441	.829
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

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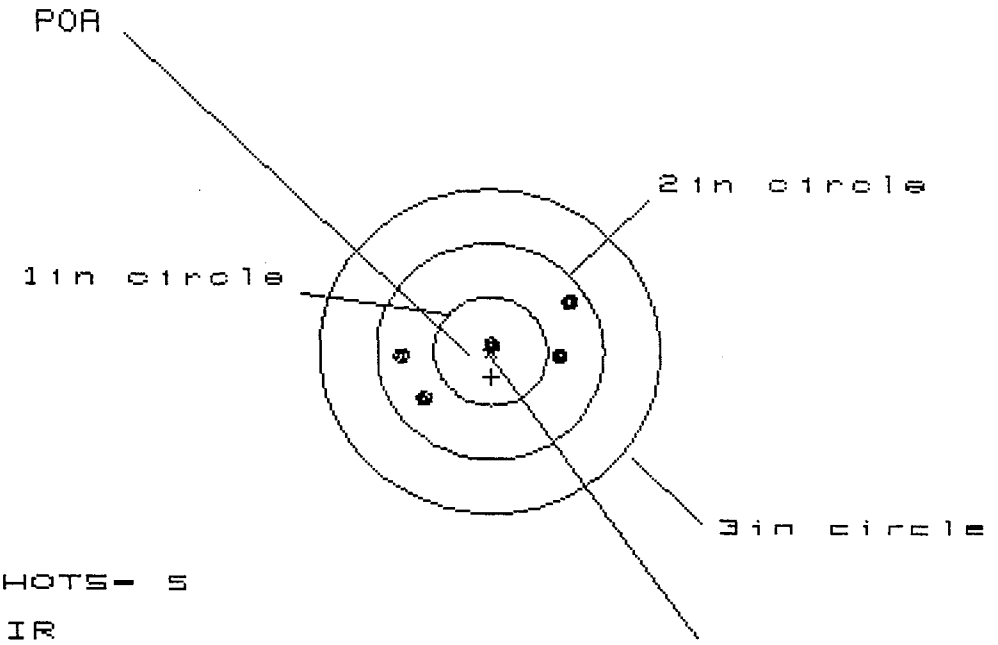
CENTERFIRE PATTERNS # 5 GUN B7511598

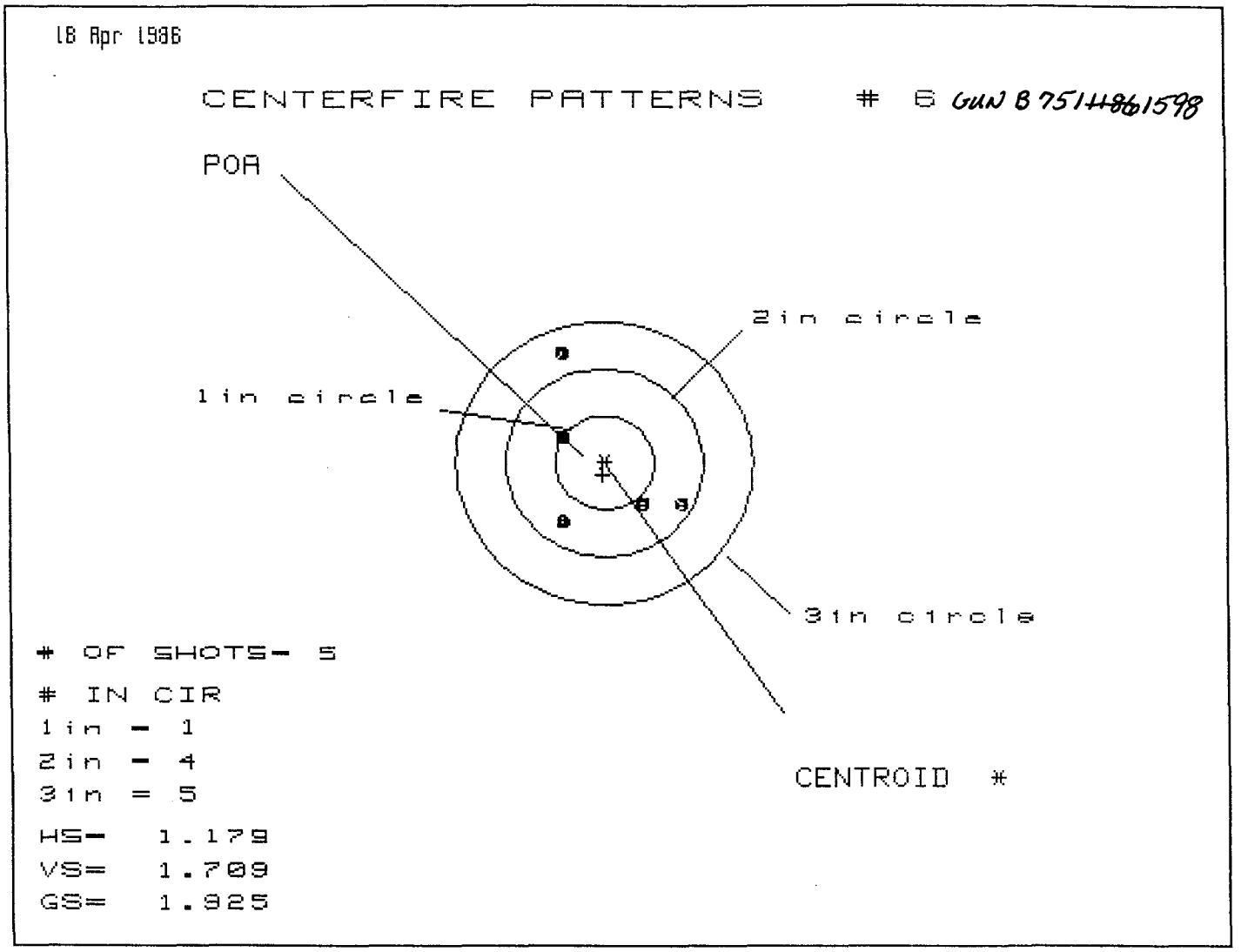


OF SHOTS= 5

IN CIR
1 in = 1
2 in = 5
3 in = 5

HS= 1.545
VS= .851
GS= 1.602

PATTERN #	:	5		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.742	.791	.585
MINIMUM X	:	-.803	-.618	-.576
MAXIMUM Y	:	.422	.159	.194
MINIMUM Y	:	-.429	-.323	-.288
CENTROID X	:	-.007	-.192	.014
CENTROID Y	:	.237	.131	.096
POA TO CENTROID in.	:	.237	.233	.097
MIN RADIUS	:	.054	.253	.194
MEAN RADIUS	:	.604	.541	.477
MAX RADIUS	:	.853	.793	.644
HORIZONTAL SPREAD	:	1.545	1.409	1.161
VERTICAL SPREAD	:	.851	.482	.482
EXTREME SPREAD	:	1.602	1.410	1.222
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	6		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.786	.692	.507
MINIMUM X	:	-.393	-.488	-.257
MAXIMUM Y	:	1.129	.534	.493
MINIMUM Y	:	-.580	-.298	-.339
CENTROID X	:	.025	.120	-.111
CENTROID Y	:	.129	-.153	-.112
POA TO CENTROID in.	:	.132	.194	.158
MIN RADIUS	:	.461	.299	.425
MEAN RADIUS	:	.756	.573	.503
MAX RADIUS	:	1.190	.718	.553
HORIZONTAL SPREAD	:	1.179	1.179	.764
VERTICAL SPREAD	:	1.709	.832	.832
EXTREME SPREAD	:	1.925	1.343	.996
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

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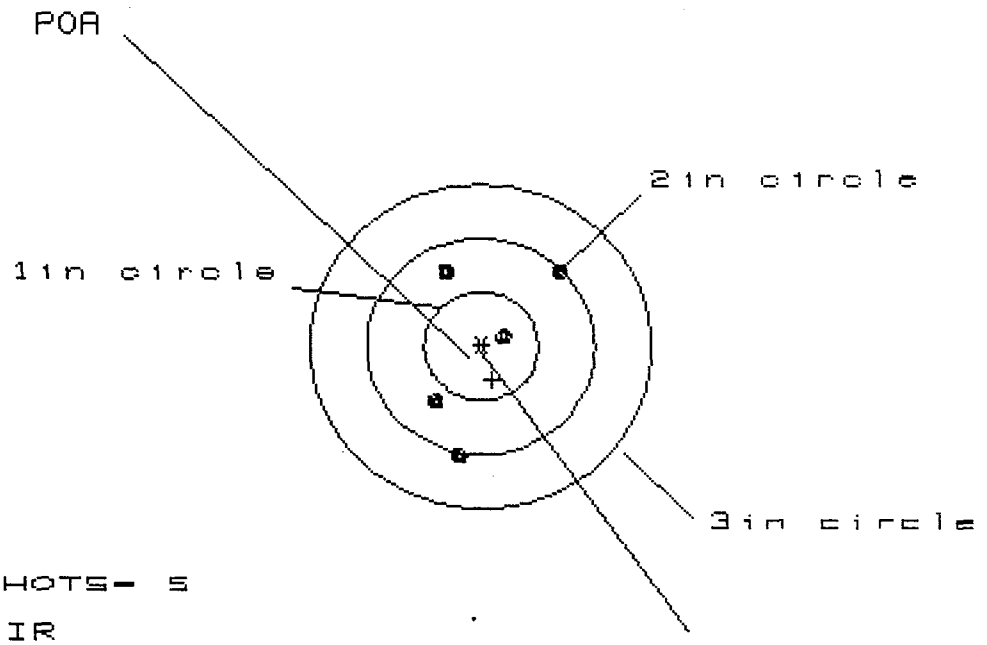
CENTERFIRE PATTERNS # 7 GUN B751186

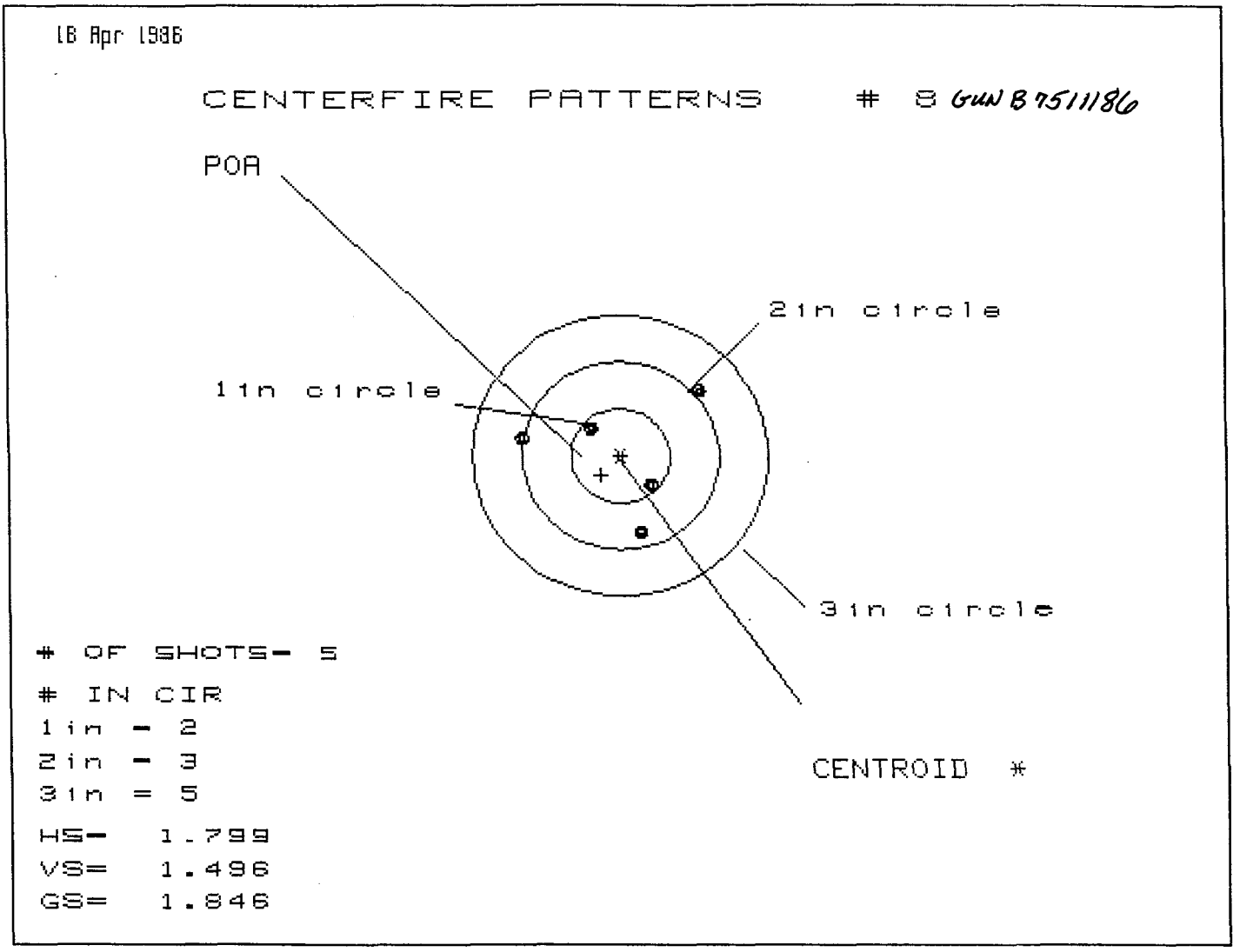


OF SHOTS= 5

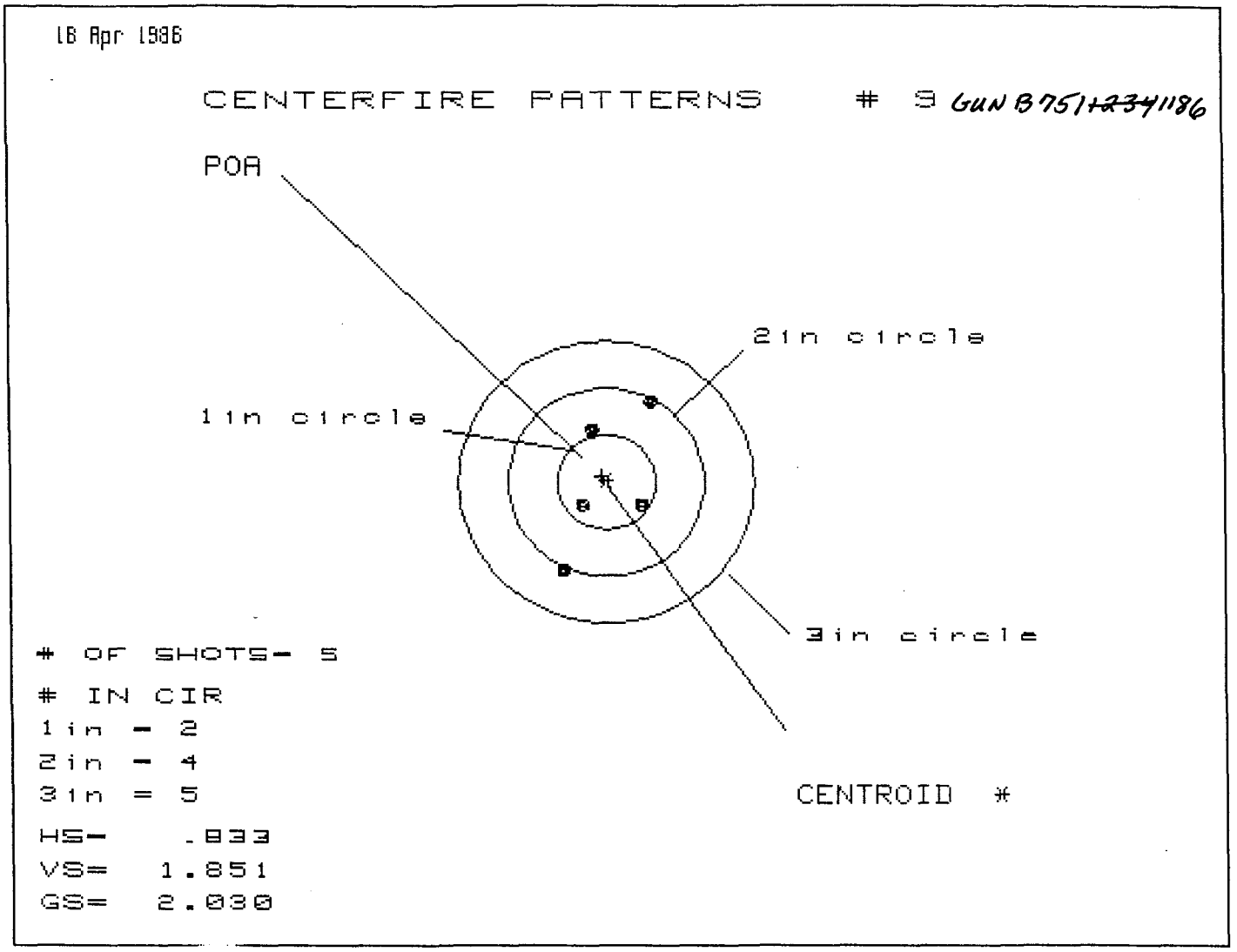
# IN CIR
1in = 1
2in = 5
3in = 5

HS= 1.130
VS= 1.676
GS= 1.871

PATTERN #	:	7		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.717	.659	.363
MINIMUM X	:	-.413	-.471	-.251
MAXIMUM Y	:	.711	.470	.605
MINIMUM Y	:	-.965	-.703	-.567
CENTROID X	:	-.094	-.036	-.256
CENTROID Y	:	.307	.548	.413
POA TO CENTROID in.	:	.321	.550	.486
MIN RADIUS	:	.212	.225	.365
MEAN RADIUS	:	.710	.605	.533
MAX RADIUS	:	.993	.846	.620
HORIZONTAL SPREAD	:	1.130	1.130	.614
VERTICAL SPREAD	:	1.676	1.172	1.172
EXTREME SPREAD	:	1.871	1.583	1.180
NUMBER IN ONE INCH CIRCLE	=		1	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

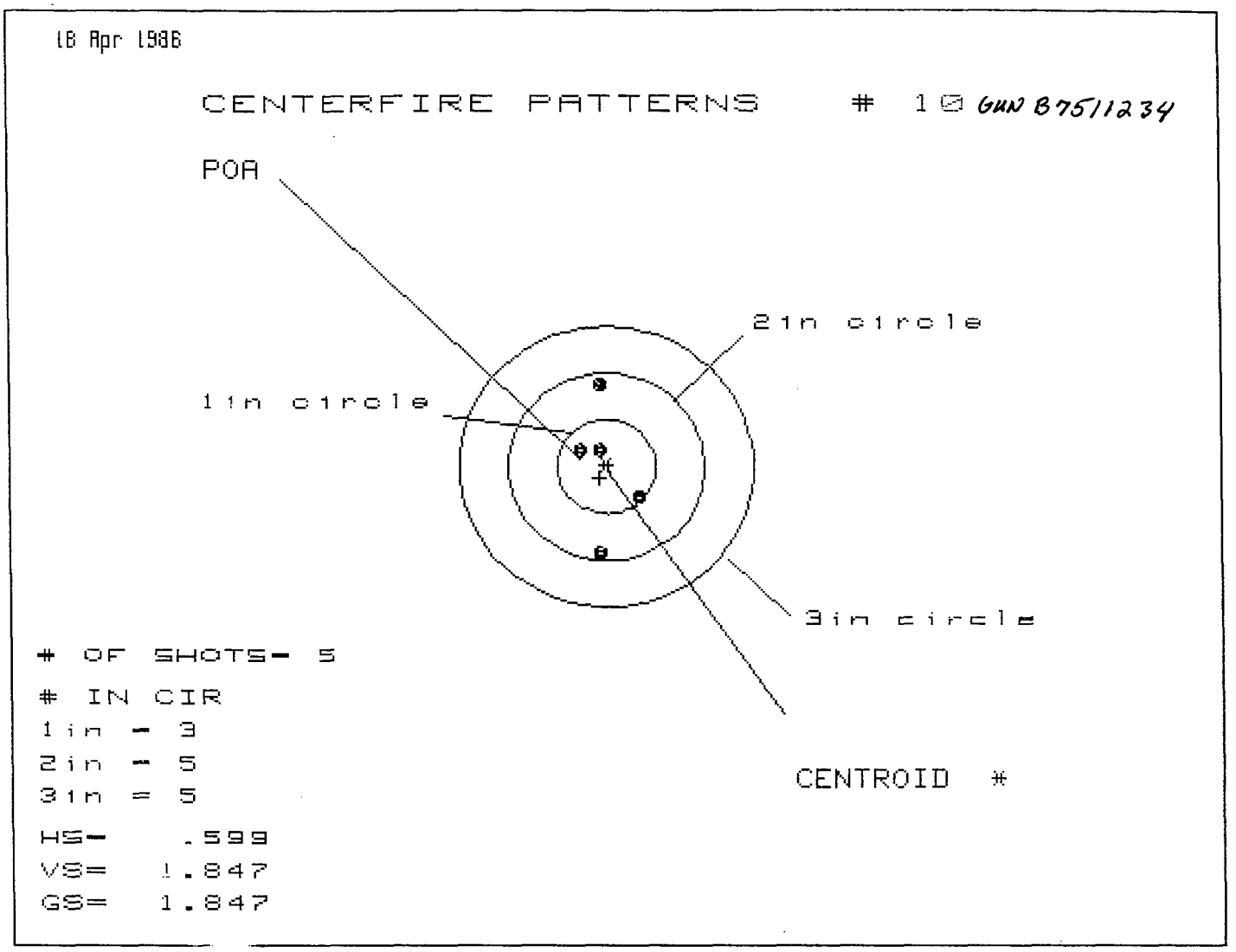


PATTERN #	:	8		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.808	.489	.227
MINIMUM X	:	-.991	-.788	-.334
MAXIMUM Y	:	.646	.406	.538
MINIMUM Y	:	-.850	-.689	-.557
CENTROID X	:	.198	-.005	.258
CENTROID Y	:	.207	.046	-.086
POA TO CENTROID in.	:	.286	.046	.272
MIN RADIUS	:	.367	.412	.228
MEAN RADIUS	:	.737	.645	.476
MAX RADIUS	:	1.035	.882	.633
HORIZONTAL SPREAD	:	1.799	1.278	.561
VERTICAL SPREAD	:	1.496	1.095	1.095
EXTREME SPREAD	:	1.846	1.586	1.181
NUMBER IN ONE INCH CIRCLE	=		2	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	9		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.429	.328	.398
MINIMUM X	:	-.404	-.360	-.251
MAXIMUM Y	:	.887	.646	.521
MINIMUM Y	:	-.964	-.482	-.266
CENTROID X	:	.046	.147	.038
CENTROID Y	:	-.064	.177	-.039
POA TO CENTROID in.	:	.079	.230	.054
MIN RADIUS	:	.354	.398	.366
MEAN RADIUS	:	.681	.569	.460
MAX RADIUS	:	1.045	.724	.541
HORIZONTAL SPREAD	:	.833	.688	.649
VERTICAL SPREAD	:	1.851	1.128	.787
EXTREME SPREAD	:	2.030	1.321	.947

NUMBER IN ONE INCH CIRCLE = 2
NUMBER IN TWO INCH CIRCLE = 4
NUMBER IN THREE INCH CIRCLE = 5



PATTERN #	:	10		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.368	.362	.341
MINIMUM X	:	-.231	-.237	-.258
MAXIMUM Y	:	.885	.644	.185
MINIMUM Y	:	-.962	-.535	-.320
CENTROID X	:	.072	.078	.099
CENTROID Y	:	.123	.364	.149
POA TO CENTROID in.	:	.143	.372	.179
MIN RADIUS	:	.170	.100	.158
MEAN RADIUS	:	.561	.408	.314
MAX RADIUS	:	.963	.647	.467
HORIZONTAL SPREAD	:	.599	.599	.599
VERTICAL SPREAD	:	1.847	1.179	.505
EXTREME SPREAD	:	1.847	1.254	.783
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		5	
NUMBER IN THREE INCH CIRCLE	=		5	

Set 3

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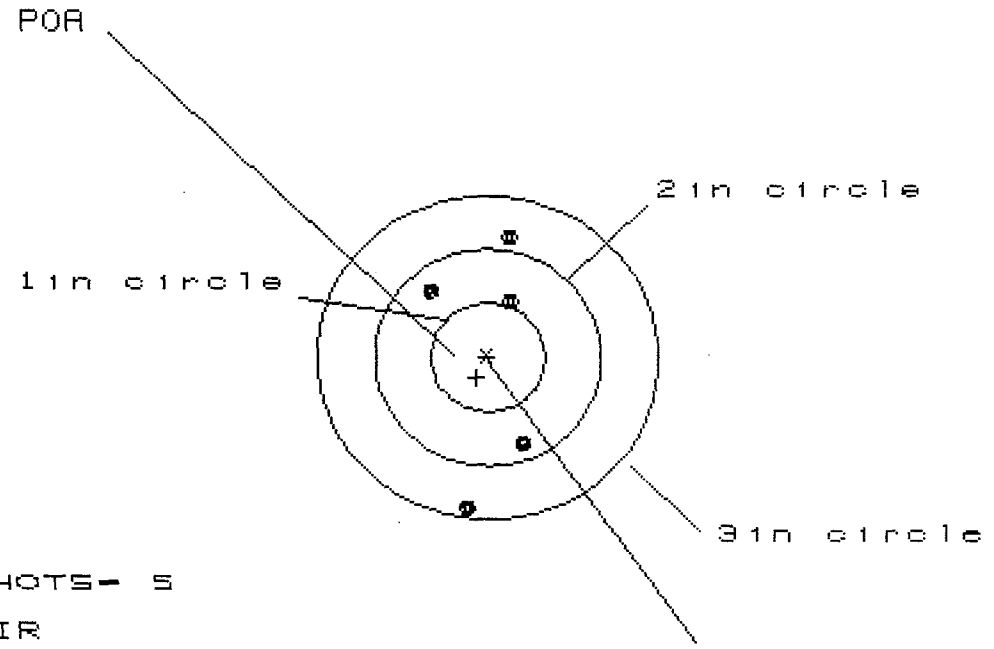
CENTERFIRE PATTERNS # 1 GUN B7511234



OF SHOTS= 5

# IN CIR
1in = 0
2in = 3
3in = 5

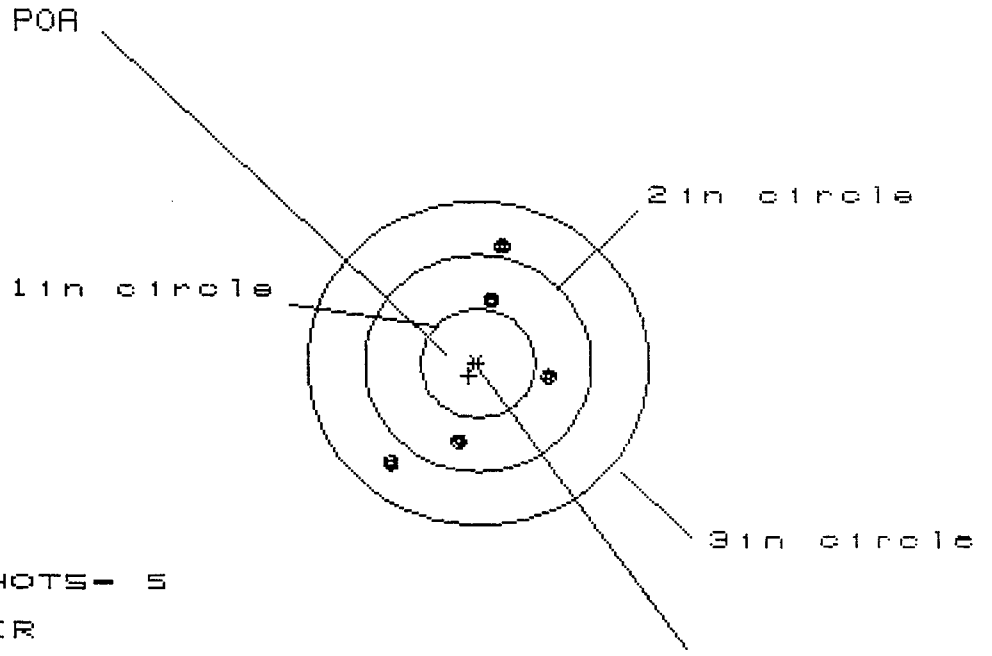
HS= .735
VS= 2.516
GS= 2.555

PATTERN #	:	1		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.263	.211	.272
MINIMUM X	:	-.472	-.524	-.463
MAXIMUM Y	:	1.086	.728	.532
MINIMUM Y	:	-1.430	-1.164	-.921
CENTROID X	:	.101	.153	.092
CENTROID Y	:	.185	.543	.300
POA TO CENTROID in.	:	.211	.564	.314
MIN RADIUS	:	.535	.195	.433
MEAN RADIUS	:	.948	.682	.700
MAX RADIUS	:	1.445	1.183	.960
HORIZONTAL SPREAD	:	.735	.735	.735
VERTICAL SPREAD	:	2.516	.892	1.453
EXTREME SPREAD	:	2.555	1.892	1.628

NUMBER IN ONE INCH CIRCLE = 0
NUMBER IN TWO INCH CIRCLE = 3
NUMBER IN THREE INCH CIRCLE = 5

18 Apr 1986

CENTERFIRE PATTERNS # 2 GUN B7511234



OF SHOTS= 5

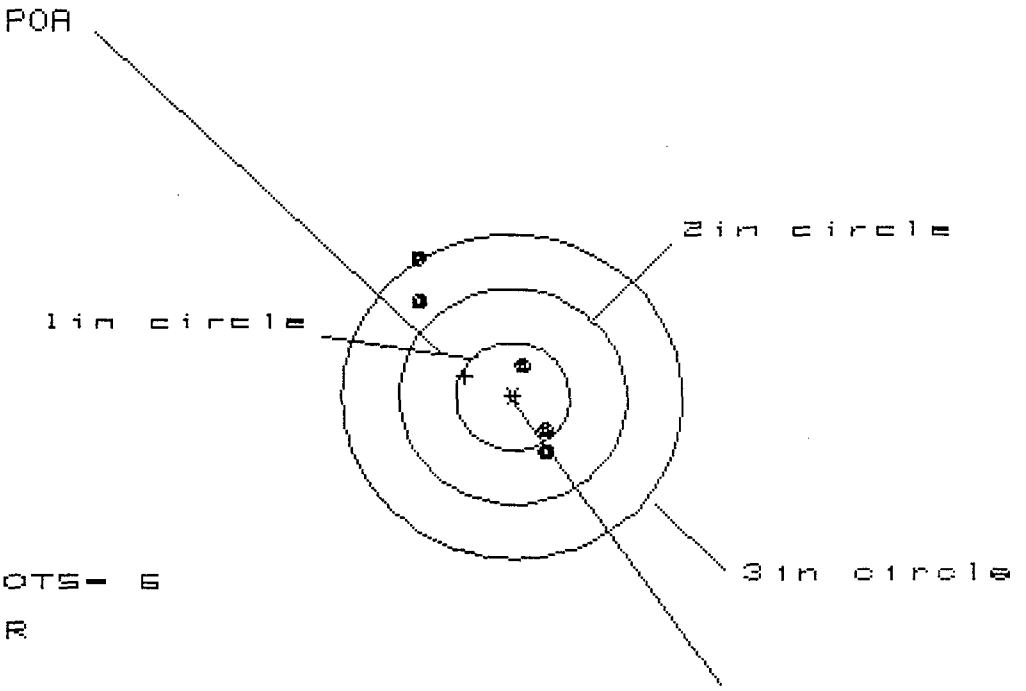
# IN CIR
1in = 0
2in = 3
3in = 5

HS= 1.424
VS= 2.022
GS= 2.258

PATTERN # :	2		
SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.626	.426	.428
MINIMUM X :	-.798	-.380	-.378
MAXIMUM Y :	1.120	.895	.674
MINIMUM Y :	-.902	-.909	-.611
CENTROID X :	.078	.278	.276
CENTROID Y :	.116	.341	.043
POA TO CENTROID in.:	.140	.440	.279
MIN RADIUS :	.619	.379	.433
MEAN RADIUS :	.862	.705	.609
MAX RADIUS :	1.204	.985	.718
HORIZONTAL SPREAD :	1.424	.806	.806
VERTICAL SPREAD :	2.022	1.804	1.285
EXTREME SPREAD :	2.258	1.845	1.326
NUMBER IN ONE INCH CIRCLE =		0	
NUMBER IN TWO INCH CIRCLE =		3	
NUMBER IN THREE INCH CIRCLE =		5	

18 Apr [illegible]6

CENTERFIRE PATTERNS # 3 GUN B751204



OF SHOTS= 6

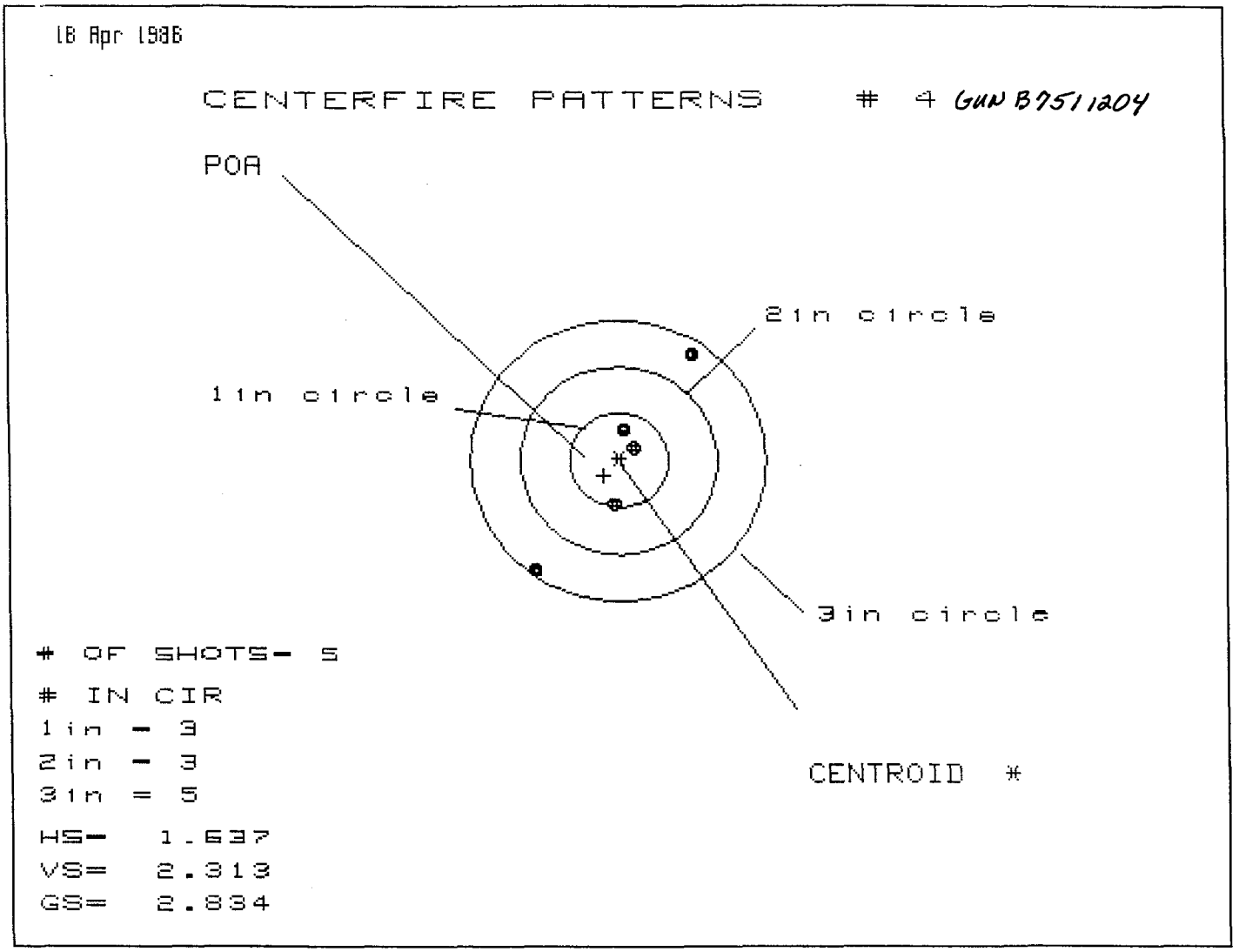
# IN CIR
1in = 1
2in = 5
3in = 6

HS= 1.105
VS= 1.321
GS= 1.722

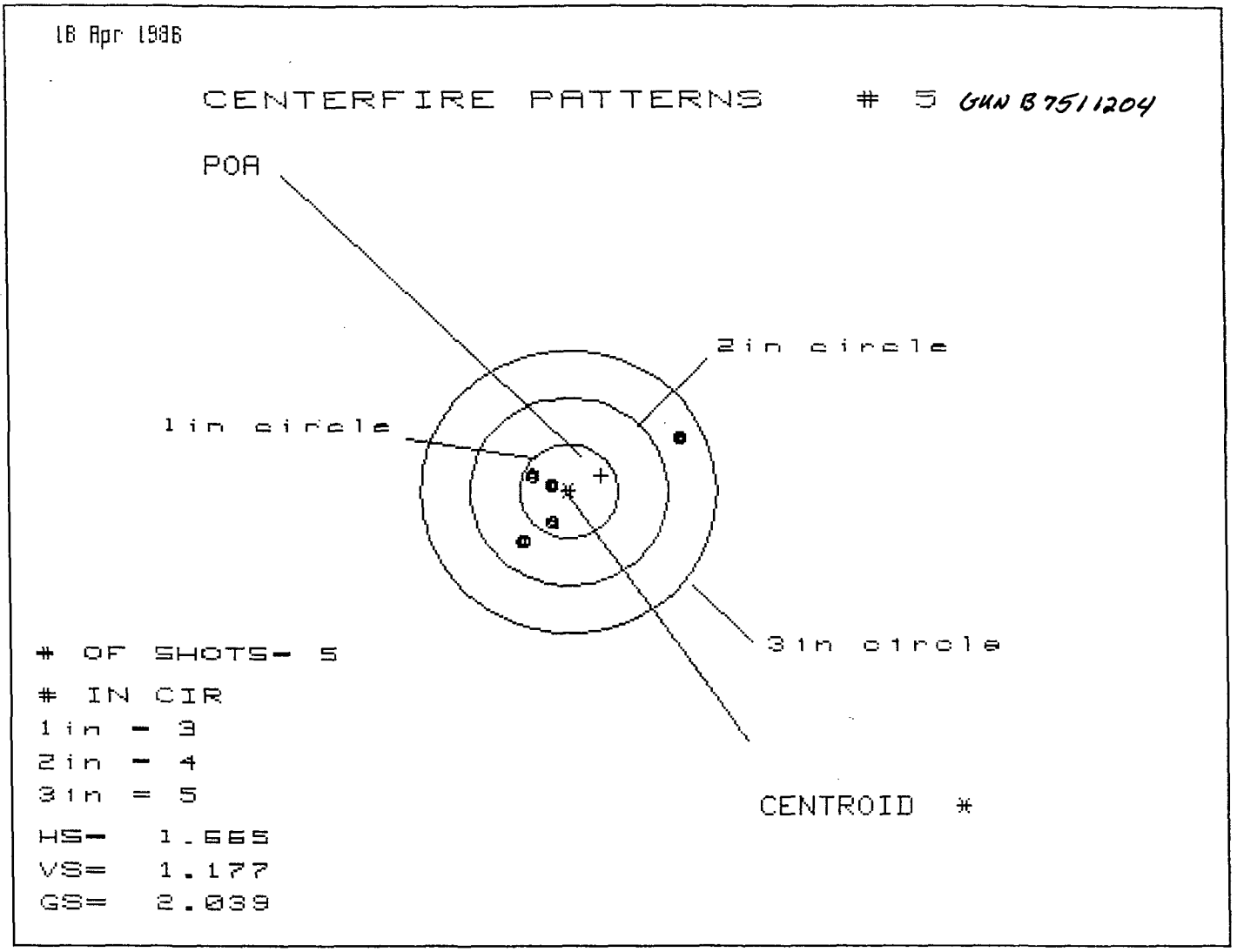
PATTERN # : 3

SHOTS (BEST OF) :	5	4	3
MAXIMUM X :	.265	.055	.072
MINIMUM X :	-.840	-.141	-.122
MAXIMUM Y :	.858	.511	.428
MINIMUM Y :	-.463	-.248	-.225
CENTROID X :	.418	.628	.609
CENTROID Y :	-.189	-.404	-.321
POA TO CENTROID in.:	.459	.747	.689
MIN RADIUS :	.211	.125	.210
MEAN RADIUS :	.664	.265	.297
MAX RADIUS :	.956	.530	.445
HORIZONTAL SPREAD :	1.105	.196	.194
VERTICAL SPREAD :	1.321	.759	.653
EXTREME SPREAD :	1.722	.784	.681

NUMBER IN ONE INCH CIRCLE = 1
NUMBER IN TWO INCH CIRCLE = 5
NUMBER IN THREE INCH CIRCLE = 6



PATTERN #	:	4		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	.749	.527	.110
MINIMUM X	:	-.888	-.240	-.065
MAXIMUM Y	:	1.145	.853	.352
MINIMUM Y	:	-1.168	-.766	-.481
CENTROID X	:	.157	.379	.204
CENTROID Y	:	.164	.456	.171
POA TO CENTROID in.	:	.227	.593	.266
MIN RADIUS	:	.208	.168	.170
MEAN RADIUS	:	.775	.551	.337
MAX RADIUS	:	1.467	1.003	.486
HORIZONTAL SPREAD	:	1.637	.767	.175
VERTICAL SPREAD	:	2.313	1.619	.833
EXTREME SPREAD	:	2.834	1.791	.833
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		3	
NUMBER IN THREE INCH CIRCLE	=		5	



PATTERN #	:	5		
SHOTS (BEST OF)	:	5	4	3
MAXIMUM X	:	1.164	.168	.098
MINIMUM X	:	-.501	-.211	-.162
MAXIMUM Y	:	.615	.307	.171
MINIMUM Y	:	-.562	-.408	-.276
CENTROID X	:	-.330	-.620	-.550
CENTROID Y	:	-.169	-.323	-.187
POA TO CENTROID in.	:	.370	.699	.581
MIN RADIUS	:	.180	.219	.123
MEAN RADIUS	:	.596	.319	.217
MAX RADIUS	:	1.316	.459	.293
HORIZONTAL SPREAD	:	1.665	.379	.260
VERTICAL SPREAD	:	1.177	.715	.447
EXTREME SPREAD	:	2.039	.735	.517
NUMBER IN ONE INCH CIRCLE	=		3	
NUMBER IN TWO INCH CIRCLE	=		4	
NUMBER IN THREE INCH CIRCLE	=		5	

```
**********************************************************************
*                        SUMMARY STATISTICS                          *
*                           ON DATA SET:                             *
*                      Center fire patterns                          *
**********************************************************************
----------------------------------------------------------------------
Subfile: B7511155
----------------------------------------------------------------------
```

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.4093	.8031	.0749	.2736
HORIZONTAL	3	0	5.0160	1.6720	.0894	.2990
VERTICAL	3	0	5.4420	1.8140	1.1426	1.0689
MAX_SPREAD	3	0	6.8214	2.2738	.5791	.7610

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	34.06691	.15796	.12817	1.47805
HORIZONTAL	17.88278	.17263	.93439	2.40961
VERTICAL	58.92667	.61715	-.82296	4.45096
MAX_SPREAD	33.46786	.43936	.39649	4.15112

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.16513	-1.50000
HORIZONTAL	.70240	-1.50000
VERTICAL	.06009	-1.50000
MAX_SPREAD	-.11547	-1.50000

Subfile: B7511217

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.1735	.7245	.1690	.4110
HORIZONTAL	3	0	5.0040	1.6680	1.2408	1.1139
VERTICAL	3	0	3.8270	1.2757	.5601	.7484
MAX_SPREAD	3	0	5.9299	1.9766	1.0673	1.0331

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	56.73468	.23732	-.28951	1.73852
HORIZONTAL	66.78148	.64312	-1.07994	4.41594
VERTICAL	58.66756	.43209	-.57058	3.12192
MAX_SPREAD	52.26480	.59645	-.57190	4.52515

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.15763	-1.50000
HORIZONTAL	-.39294	-1.50000
VERTICAL	.62145	-1.50000
MAX_SPREAD	.10092	-1.50000

Subfile: B7511137

BASIC STATISTICS

VARIABLE

NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	1.7636	.5879	.0668	.2584
HORIZONTAL	3	0	4.6240	1.5413	1.5101	1.2289
VERTICAL	3	0	3.5690	1.1897	.0127	.1129
MAX_SPREAD	3	0	5.7018	1.9006	1.3445	1.1595

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	43.95702	.14919	-.04961	1.22531
HORIZONTAL	79.72738	.70949	-1.49018	4.57284
VERTICAL	9.48779	.06517	.91122	1.46812
MAX_SPREAD	61.00985	.66946	-.95992	4.76110

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.69287	-1.50000
HORIZONTAL	.69680	-1.50000
VERTICAL	.70704	-1.50000
MAX_SPREAD	.70541	-1.50000

Subfile: B7511598

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	1.9558	.6519	.0081	.0900
HORIZONTAL	3	0	4.1610	1.3870	.0354	.1881
VERTICAL	3	0	3.5570	1.1857	.2107	.4591
MAX_SPREAD	3	0	4.9675	1.6558	.0606	.2462

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	13.80021	.05194	.42999	.87388
HORIZONTAL	13.55827	.10857	.92309	1.85091
VERTICAL	38.71757	.26504	.05320	2.31813
MAX_SPREAD	14.86884	.14215	1.04847	2.26321

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.70079	-1.50000
HORIZONTAL	-.45393	-1.50000
VERTICAL	.62750	-1.50000
MAX_SPREAD	.38511	-1.50000

Subfile: B7511186

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.1277	.7092	.0008	.0279
HORIZONTAL	3	0	3.7620	1.2540	.2448	.4948
VERTICAL	3	0	5.0230	1.6743	.0315	.1775
MAX_SPREAD	3	0	5.7471	1.9157	.0099	.0997

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	3.93336	.01611	.64042	.77806
HORIZONTAL	39.45725	.28567	.03338	2.47462
VERTICAL	10.60158	.10248	1.23644	2.11223
MAX_SPREAD	5.20205	.05754	1.66985	2.16153

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	-.07731	-1.50000
HORIZONTAL	.43148	-1.50000
VERTICAL	-.01725	-1.50000
MAX_SPREAD	.65471	-1.50000

Subfile: B7511234

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.3706	.7902	.0414	.2035
HORIZONTAL	3	0	2.7580	.9193	.1956	.4423
VERTICAL	3	0	6.3850	2.1283	.1204	.3469
MAX_SPREAD	3	0	6.6597	2.2199	.1262	.3553

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	25.74798	.11747	.28828	1.29213
HORIZONTAL	48.11231	.25537	-.17182	2.01048
VERTICAL	16.30122	.20031	1.27245	2.98422
MAX_SPREAD	16.00470	.20513	1.34343	3.09637

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	-.56714	-1.50000
HORIZONTAL	.63264	-1.50000
VERTICAL	.51016	-1.50000
MAX_SPREAD	-.19243	-1.50000

Subfile: B7511204

BASIC STATISTICS

VARIABLE NAME	# OF OBS.	# OF MISS	SUM	MEAN	VARIANCE	STD.DEV.
MEAN_RAD.	3	0	2.0356	.6785	.0082	.0906
HORIZONTAL	3	0	4.4070	1.4690	.0996	.3155
VERTICAL	3	0	4.8110	1.6037	.3825	.6185
MAX_SPREAD	3	0	6.5949	2.1983	.3279	.5726

VARIABLE NAME	COEFFICIENT OF VARIATION	STD. ERROR OF MEAN	95 % CONFIDENCE INTERVAL LOWER LIMIT	UPPER LIMIT
MEAN_RAD.	13.34862	.05229	.45510	.90199
HORIZONTAL	21.48019	.18218	.69058	2.24742
VERTICAL	38.56822	.35709	.07786	3.12947
MAX_SPREAD	26.04704	.33059	.78576	3.61085

VARIABLE	SKEWNESS	KURTOSIS
MEAN_RAD.	.28337	-1.50000
HORIZONTAL	-.70085	-1.50000
VERTICAL	.66423	-1.50000
MAX_SPREAD	.47153	-1.50000

RD-69-B

QR # 000873

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

XC: L. B. Bosquet
G. J. Hill
R. J. Long
W. J. Newkirk
D. I. Roark
K. W. Soucy

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

March 27, 1986

J. J. BURNS

XP-100, CAL. .223, TRIAL AND PILOT - FINISH GUN AUDIT

SUMMARY:

This lot is rejected for mechanical and visual nonconformities. On two of the eight sample guns, safety switch operating force became unsatisfactory. All stock assemblies of the sample contained significant visual nonconformities.

CONCLUSIONS:

Corrective actions to reduce the likelihood of such quality problems in the future are needed at:

- o Stock assembly
- o Final assembly

IMMEDIATE FOLLOW-UP:

All nonconforming product was contained on 3/26/86.

Nonconforming stock assemblies were reviewed with the Foreman of the originating Dept. on 3/26/86.

Mechanical checks and rework began on 3/27/86.

The Custom Shop Supervisor was notified 3/27/86.

J. J. BURNS

QR # 000873
March 27, 1986

XP-100, CAL. .223, TRIAL AND PILOT - FINISH GUN AUDIT - contd.

RESULTS:

Observed nonconformities are ranked below in the order of estimated overall importance (highest first); weighing both the individual seriousness of the nonconformity and its observed frequency of occurrence.

Mechanical:

The safety switch operating force dropped abruptly and its movement became sloppy when the lower leg of the safety snap washer became disengaged from the notch in the safety pivot pin.

Visual:

All eight sample stock assemblies had an abrupt and very noticeable difference in surface luster between the sides of the fore-end and the rest of the Stock.

Approximately half the sample stocks had obvious scratches, scrapes or mars. (The final assembler reported that he sometimes receives stock assemblies piled, en masse, in a cardboard box; instead of in individually-compartmented short stock wire racks.)

All eight sample barrel assemblies show a polish mismatch (transition) just in front of the fore-end. This distracts from the appearance and perceived quality of the product; it is believed this will be objectionable to a minority of customers.

W. A. Warren, Jr.
Quality Assurance Analyst

WAW/bdm

RD-62-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

May 29, 1986

TO: W.A. WARREN
FROM: F.L. SUPRY

SUBJECT: Wording change in report# 860972 (XP-100 .223 TRIAL AND PILOT)

As per my oral commitment, the wording on page 4 item number 2 has been changed to read; "The Remington standard for the XP-100, chambered in the .223 REM caliber is an extreme Group Size of: 3.0 inches for a five (5) shot group."

Thank you for drawing the error to my attention.

RD-69-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

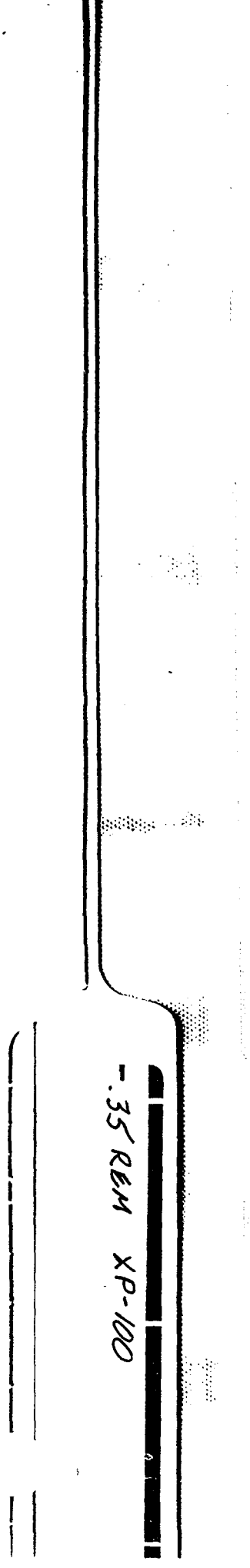
TO:	J. BOWER	T. DOUGLAS	D. FINDLAY
	A. HUGICK	W. COLE	K. ROWLANDS
	R. MURPHY	S. FRANZ	J. RONKAINEN
	F. MARTIN	F. SMITH	T. BAUMAN
	K. CALKINS	T. POWERS	R. HOWE
	C. STEPHENS	J. BAGGETTA	T. DUNN
	D. THOMAS	J.SELAN	D. URTZ
	J. MARTIN		

FROM: J. SNEDEKER/F. SUPRY

We have scheduled a meeting for the morning of Friday January 31, 1986, commencing at 8:15 A.M. in the Research Conference Room (52-4) for the following purpose:

TO ESTABLISH GUIDELINES FOR THE INITIATION OF TEST PROGRAMS, THE PROCEDURES FOR THE CONDUCT OF THESE TESTS, AND TO CLARIFY THE DIFFERENCE BETWEEN DEVELOPMENTAL AND ACCEPTANCE TESTING. TO DEFINE THE RESPONSIBILITIES FOR DATA COLLECTION, ANALYSIS AND THE REPORTING OF TEST RESULTS FOR EACH TEST TYPE.

Your attendance at this meeting would be greatly appreciated.


.35 REM XP-100

RD-49-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

cc: W.H. Coleman, II/File
J.W. Bower
T.C. Douglas
J.R. Snedeker
A.A. Hugick
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 862332
OCTOBER 14, 1986

MODEL XP-100 35 REM. CALIBER DESIGN VERIFICATION

MODEL XP-100 35 REM. CALIBER DESIGN VERIFICATION

ABSTRACT:

The Test and Measurement Laboratory finds the Design Verification Test of the Model XP-100 35 REM caliber to be acceptable. The testing consisted of 100 yard accuracy and endurance.

1. Four pistols were selected for the accuracy test, two each from the group size extremes recorded from previous Gallery testing. The accuracy was shot offhand by A.A. Hugick.

2. The endurance test consisted of the firing of 9000 rounds, 6000 rounds through one action, and 3000 rounds through another action. A total of six stocks were used in the endurance. Four stocks were subjected to 1000 rounds each, and the other two stocks were subjected to 2000 rounds each. Some minor seam separation was noted, at the front take down screw hole, at the 1000 and 1400 round levels; however, it was not enough to interfere with the function or the safety of the pistols. One stock was subjected to an additional 1000 factory rounds and 20 Proof rounds, to verify that the separation would not interfere with the function or the safety of the pistol.

Prepared by: F.L. SUPRY
Date Prepared: 10/14/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab

J.R. Snedeker 14Oct86

W.H. COLEMAN, II
New Products Research Lab Director

W H Coleman II 10/15/86

REP.#862332 W.O.# C-0801

MODEL XP-100 35 REM. CALIBER DESIGN VERIFICATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

On August 21, 1986 a request to conduct a Design Verification Test on the Model XP-100 35 REM. caliber pistol was received by the Test Lab. The test would consist of endurance and accuracy testing. The purpose of the endurance test is to check the stocks joints. The purpose of the accuracy test is to compare the previous mechanical testing results to the offhand results.

SCOPE OF TEST:

To determine if the XP-100 chambered in the 35 REM. caliber, would meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the 35 REM. caliber, was found to be acceptable in all phases of the Design Verification Test.

REPORT TEXT:

1. ACCURACY:

The Remington standard for the XP-100, chambered in the 35 REM caliber has not been established. The proposed standard is 3.5 inch group size at 100 yards.

A. Four (4) pistols were tested for 100 yard accuracy.

B7515993 B7510556 B7512645 B7516033

B. Using 200 grain Remington ammunition, the following 5 shot group size averages were shot:

	ACCURACY DEVICE	OFFHAND
a. Group Size:	1.75 inches	3.41 inches

C. Using 150 grain Remington ammunition, the following 5 shot group size average was shot:

	ACCURACY DEVICE	OFFHAND
a. Group Size:	Not Available	2.77 inches

D. Accuracy results (200 gr. and 150 gr.) per individual pistol are located in the appendix of this report. Since the shooter feels that it is easy to throw a shot in handgun accuracy, the results are given in the best of 5, 4, and 3 shot groups.

2. ENDURANCE:

A total of 9000 rounds were fired through 2 actions, 6000 on action #7513713, and 3000 on action # 7506066. Six (6) stocks were tested, 4 stocks were shot 1000 rounds each, and 2 stocks were shot 2000 rounds each. Some minor separation was noted; however, it did not interfere with the function or safety of the pistols. One of the stocks, with 2000 rounds, was fired an additional 1000 factory rounds and 20 Proof rounds with no increase in the minor separation.

A. 1000 ROUND LEVEL RESULTS:

a. At the 1000 round inspection, three stocks showed a small separation at the rear of the front take down screw hole, near the recoil lug.

B. 2000 ROUND LEVEL RESULTS:

a. At the 1400 round inspection both stocks showed a separation at the front and rear of the front take down screw hole.

2. ENDURANCE (continued)

B. 2000 ROUND LEVEL RESULTS: (continued)

b. At the 2000 round inspection, the separation showed no increase.

C. 3000 ROUND AND 20 PROOF ROUND LEVEL RESULTS:

a. There was no increase in the length of the separation.

b. The separation appeared to be due to the area being difficult to retain uniform adhesion during the assembly operation as opposed to a functional failure. Refer to report supplement.

TEST PROCEDURE:

1. ACCURACY:

A. The accuracy was shot by A. Hugick (Research) at the R & D 100 yard range. The pistols were held at the grip with the right hand, and at the stock, at the center of the barrel, with the left hand. The elbows were bent slightly, and the pistol was rested on a sandbag.

B. Leupold bases (standard long action) and Leupold one (1) inch rings were used, in conjunction with a Redfield 2 1/2X long eye relief pistol scope.

C. Remington ammunition, R35R1 (Code E24IC260L) 150 grain and R35R2 (Code B15RD5548) 200 grain, was used for the 100 yard accuracy test.

D. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

E. A total of four (4), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

F. The patterns were analyzed for group size, horizontal spread, and vertical spread. The best of 5, 4, and 3 shot group averages were calculated for each pistol.

G. A summary sheet was written and included in the appendix of this report.

TEST PROCEDURE: (continued)

2. ENDURANCE:

A. The endurance was shot by H. Weaver, D. Thomas, and F. Supry (Research) in the R&D shooting room.

B. A stock was assembled to the action and the pistol placed in a shooting harness attached to a shooting jack.

C. The stock was removed and inspected every 200 rounds.

D. Action #B7506066 was used to endurance 3 stocks to 1000 rounds each. No malfunctions occurred during the firing of the 3000 rounds.

E. Action #B7513713 was used to endurance 1 stock to 1000 rounds and 2 stocks to 2000 rounds each. No malfunctions occurred during the firing of 5000 rounds.

F. A new recoil rest was fabricated, by Robert Howe, for the XP-100. This rest simulates hand holding of the stock and allows unrestricted travel of the assembly if total stock separation were to occur.

G. Action #B7513713 and the new rest were used to endurance one of the 2000 round stocks to 3000 rounds, and to fire 20 Proof rounds through the stock after the 3000 round level.

H. All the additional shooting was done by A. Hugick, and the inspections were done by F. Supry and A. Hugick.

I. The stock with 3000 rounds was sectioned and examined for adhesion.

J. A decision to accept the design of the XP-100 chambered in the 35 REM caliber was made after the final results were reviewed with W.H. Coleman, II.

APPENDIX

- 100 YARD ACCURACY

GALLERY ACCURACY DEVICE vs OFF HAND SHOOTING (BEST GROUPS)

SERIAL NUMBER	AMMO	GALLERY DEVICE	OFF HAND BEST 5	OFF HAND BEST 4	OFF HAND BEST 3
B7515993	200	2.0 INCHES	2.5 IN.	1.5 IN.	0.8 IN.
	150	N.A.	2.2 IN.	2.0 IN.	1.8 IN.
B7512645	200	1.5 INCHES	3.2 IN.	2.0 IN.	1.0 IN.
	150	N.A.	2.5 IN.	1.1 IN.	0.7 IN.
B7510556	200	2.0 INCHES	3.8 IN.	2.5 IN.	1.2 IN.
	150	N.A.	2.5 IN.	2.0 IN.	0.7 IN.
B7516103	200	1.5 INCHES	1.6 IN.	0.5 IN.	0.3 IN.
	150	N.A.	2.6 IN.	2.0 IN.	1.0 IN.

INDIVIDUAL ACCURACY RESULTS

SERIAL NUMBER	AMMO	GROUP NUMBER	OFF HAND BEST 5	OFF HAND BEST 4	OFF HAND BEST 3
B7515993	200	1	4.5 IN.	3.8 IN.	2.8 IN.
		2	2.5 IN.	1.5 IN.	0.8 IN.
	150	1	2.2 IN.	2.0 IN.	1.8 IN.
		2	3.5 IN.	3.1 IN.	2.0 IN.
B7512645	200	1	3.2 IN.	2.0 IN.	1.0 IN.
		2	5.1 IN.	2.9 IN.	1.8 IN.
	150	1	2.5 IN.	1.1 IN.	0.7 IN.
		2	2.5 IN.	2.1 IN.	1.2 IN.
B7510556	200	1	4.9 IN.	4.5 IN.	1.7 IN.
		2	3.8 IN.	2.5 IN.	1.2 IN.
	150	1	3.0 IN.	2.2 IN.	1.2 IN.
		2	3.7 IN.	2.0 IN.	0.7 IN.
shot at end of test		3	3.1 IN.	2.2 IN.	2.0 IN.
		4	2.5 IN.	2.3 IN.	1.2 IN.
B7516103	200	1	1.7 IN.	1.3 IN.	1.2 IN.
		2	1.6 IN.	0.5 IN.	0.3 IN.
	150	1	2.6 IN.	2.0 IN.	1.0 IN.
		2	3.3 IN.	1.9 IN.	1.3 IN.

TEST AND MEASUREMENT LAB SUPPLEMENT

DATE: 10/16/86

REPORT NO.: 862332 WORK ORDER NO.: C-0801

WRITTEN BY: F.L. SUPRY

TEST TYPE: SECTION AND EXAMINE XP-100 35 REM CALIBER STOCK

REASON FOR TEST :

To examine the adhesion of the XP-100 35 REM stock.

EQUIPMENT REQUIRED :

The stock with 3000 rounds, a band saw, and personnel.

TEST PROCEDURE :

The stock was cut into six sections and labeled as follows:

#1 5.75 inches, measured from the muzzle end of the stock.
#2 2.80 inches, cutting through the trigger guard.
#3 2.40 inches, cutting 1 inch beyond the front take down screw.
#4 1.80 inches, cutting 0.25 inches in front of rear take down screw.
#5 3.20 inches, from #4 cut to rear of stock.
#6 3.50 inches, the grip, measured at the centerline, from the base.

Each section was examined by A. Hugick, R. Howe, and F. Supry.

TEST RESULTS :

The separation of the glued surfaces in section #3, was due to the area being difficult to retain uniform adhesives during the assembly operation, and not that of a functional failure.

There was no stock separation in any of the sections, except section #3 at the front take down screw hole. That separation was along the horizontal area of the hole and 0.9 inches down the vertical, stopping at the start of the horizontal area leading to the grip.

Section #3 was fractured to further examine the adhesion. The start of the horizontal leading to the grip was fused with a good glue joint; but, the glue in the vertical was very sparse.

.35 REMINGTON

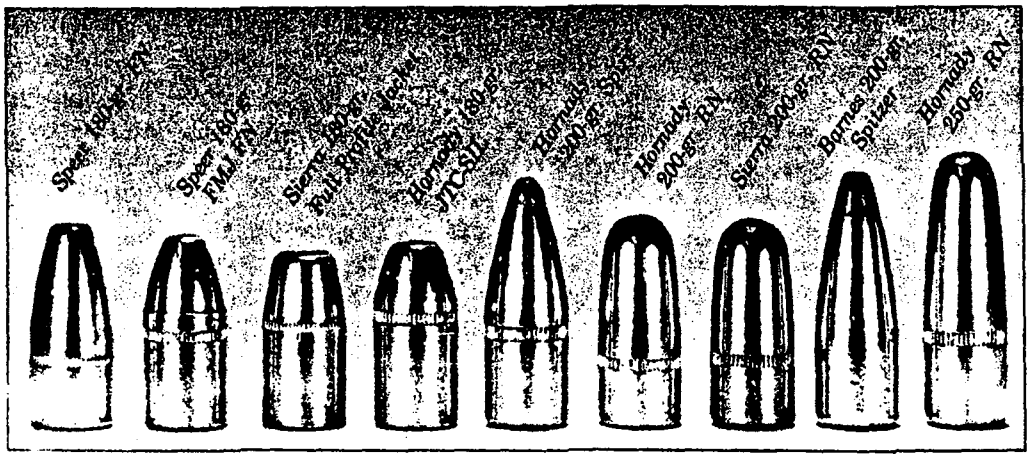
This old-timer has worked for years in rifles. Now it's about to start a second life as a super handgun cartridge.

By Bob Milek

■ Almost 80 years ago the Remington Arms Company introduced the .35 Remington. It was just one of a family of rimless cartridges introduced by Remington in 1906 for use in its Model 8 semi-automatic rifle. Other cartridges in this rimless family were the .25 Remington, .30 Remington and .32 Remington. All of these—with the exception of the .35 Remington—were simply rimless clones of the rimmed .25-35, .30-30 and .32 Special which Winchester had already introduced in its Model 94 rifle. At the time the .35 Winchester was in existence, but it was significantly more powerful than the .35 Remington that the latter can hardly be called a rimless copy of it. If anything, the .35 Remington nearly duplicated the velocity of the .33 Winchester, but the latter used a .338-inch bullet rather than the .358-incher of the Remington round. An old wildcat and one in which there has recently been renewed interest, the .35-30/30 produces ballistics equaling those of the .35 Remington.

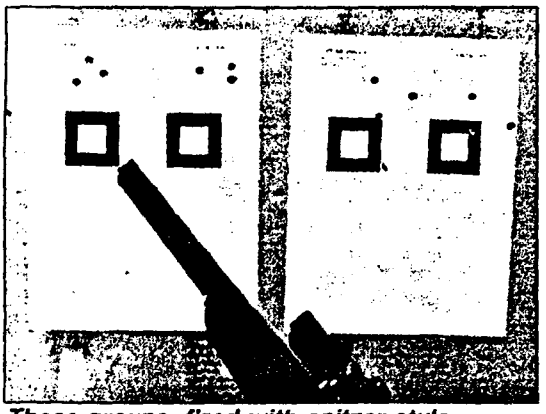
Today, only the .35 Remington survives from that group of four rimless Remington cartridges. The others have taken their places on the list of antiquity. Why did the .35 Remington make it? Simply because it's one of the finest brush country cartridges for deer and black bear that's ever been introduced. It's much better than the .30-30 or the .32 Special, but not in the same league with such cartridges as the .358 Winchester and .350 Remington Magnum. However, those who hunt whitetail deer and black bear in heavy cover find that the .35 Remington is just what they want—plenty of power for the job, yet the recoil is mild. Because of this, quite an assortment of rifles have been chambered for the .35 Remington over the years—semi-autos, lever actions and even the venerable Model

PHOTO BY L.L. RUE III

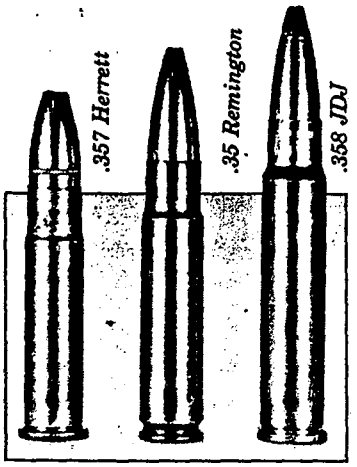


Few handgun cartridges equal the versatility of the .35 Remington as it comes from the factory. This rifle round seems right at home in the T/C and may very well be the ultimate factory caliber for handgunning's tougher chores, such as big-game hunting. Author used the .35 Remington successfully on a recent African hunt.

ULTIMATE HANDGUN HUNTING CALIBER!



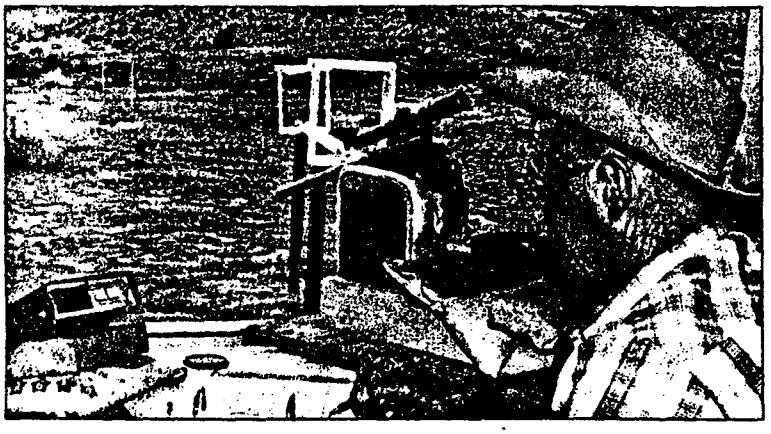
These groups, fired with spitzer-style bullets, are under 1½ inches and are quite adequate for hunting or silhouette needs.

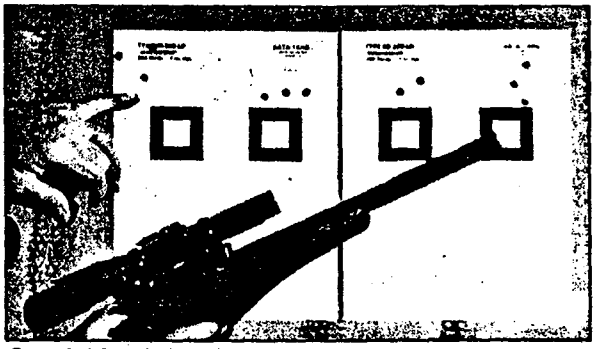


Here the .35 Remington is compared to two other .35 caliber wildcats that are chambered in the Contender.

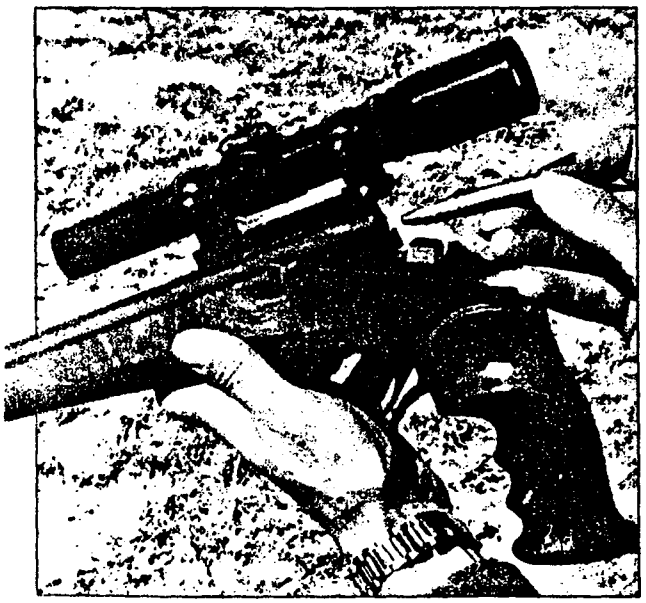
70 Winchester. Today, though, only the Marlin Model 336 lever action is chambered for the .35 Remington.

With just one rifle available for it, you might think that the .35 Remington is close to attaining obsolete status. Not so. To begin with, there are just too many good .35 Remington rifles still in use today and their owners aren't about to let the cartridge disappear. However, there's another market that we've been overlooking for all too long—handguns. That's right; the .35 Remington may be one of the best commercial cartridges presently available for use in a





Careful load development (L) results in fine accuracy and power. Sighting "high" extends the range of the .35 out to and beyond 200 yards!

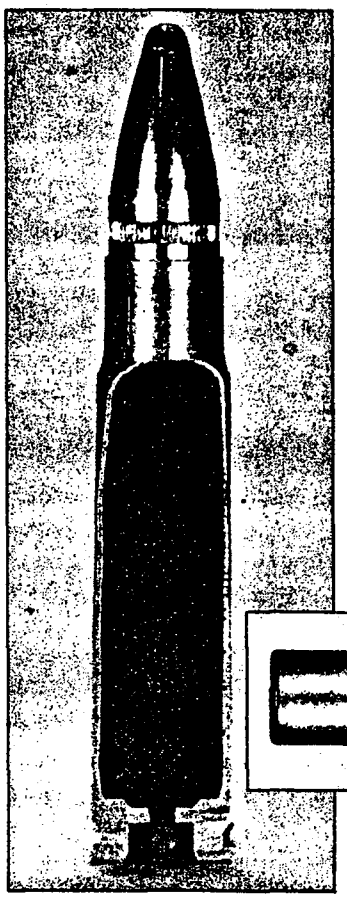


The .35 Remington is a bit long as a pistol round but seems well-suited to the 14-inch Contender barrel with factory and hand loads.

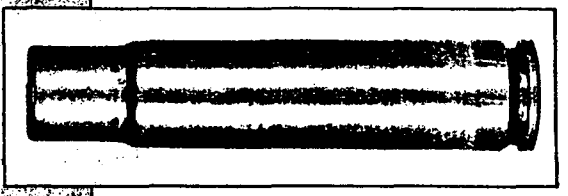
.35 REMINGTON PISTOL LOADING DATA

BULLET	POWDER	GRAINS	PRIMER	CASE	INSTRUMENTAL VELOCITY FPS
Rem. 150-gr. F.L.	—	—	Rem.	R-P	1,934
Win. 200-gr. RN F.L.	—	—	Win.	W-W	1,842
Fed. 200-gr. RN F.L.	—	—	Fed.	Fed.	1,806
Sierra 158-gr. JSP	N200	33.0	Fed. 215	R-P	2,107
Sierra 158-gr. JSP	IMR 4198	32.0	Fed. 215	R-P	2,195
Sierra 158-gr. JSP	H4227	30.0	Fed. 215	R-P	2,307
Speer 180-gr. FN	H322	38.0	Fed. 210M	R-P	2,033
Speer 180-gr. FN	H4895	38.0	Fed. 210M	R-P	1,936
Speer 180-gr. FN	N201	40.0	Fed. 210M	R-P	2,038
Speer 180-gr. FN	RE 7	30.0	Fed. 210M	R-P	1,911
Speer 180-gr. FMJ FN	H322	37.6	Fed. 210M	R-P	2,089
Hornady 180-gr. JTC-SIL	H322	37.3	Fed. 210M	R-P	2,035
Sierra 180-gr. FPJ	N201	39.5	Fed. 210M	R-P	2,013
Barnes 200-gr. Spitzer	H322	36.5	Fed. 210M	R-P	1,932
Barnes 200-gr. Spitzer	N201	38.0	Fed. 210M	R-P	1,919
Hornady 200-gr. Spire Point	H322	36.0	Fed. 210M	R-P	2,013
Hornady 200-gr. Spire Point	748	40.0	CCI 250	R-P	1,782
Hornady 200-gr. RN	H322	36.5	Fed. 210M	R-P	1,920
Hornady 200-gr. RN	N201	38.0	Fed. 210M	R-P	1,927
Sierra 200-gr. RN	H322	36.0	Fed. 210M	R-P	1,871
Hornady 250-gr. RN	H322	32.0	Fed. 210M	R-P	1,691
Hornady 250-gr. RN	N201	34.5	Fed. 210M	R-P	1,731

Loading the .35 Remington is easy; however, care must be taken in load development to watch for pressure signs. Both dies and components are readily available for .35 Rem.



Even with 200-grain bullets, the .35 Remington's case can be fully utilized for containment of powder.



The case of the .35 Remington is almost straight, with very little shoulder for headspacing, making perfect die adjustment imperative.

.35 REMINGTON

specialty pistol for big-game hunting and metallic silhouette shooting.

Actually, Thompson/Center Arms has been offering barrels for its Contender pistol in .35 Remington chambering since it introduced the Super 14 barrel line, but a good many shooters, myself included, have been guilty of ignoring it. Actually, I haven't really ignored the .35 Remington. I worked with it extensively back in 1978, but at that time found it to have little if any advantage over the wildcat .357 Herrett. Today, all of this has changed, due in part to improvements in the locking system of the Contender, but more because of the advances in .357 and .358-inch bullets now available to handloaders.

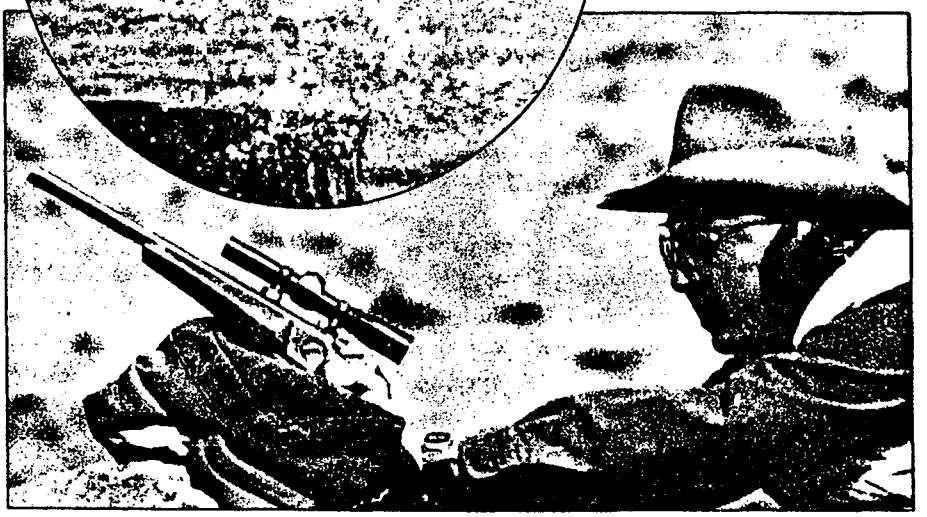
However, I'll have to admit that my renewed interest in the .35 Remington in a handgun was prompted primarily by demands from handgun hunters for a commercial cartridge that they could use on big game—everything from deer through moose in size. There are any number of wildcats around for this purpose. I was directly involved in the development of one, the .357 Herrett. However, making wildcat pistol cartridges is an expensive, time-consuming and in many instances intricate process, and a good many hunters just don't want to get involved to this degree. What they're after is a cartridge they can buy commercially, use successfully just as it comes from the shelf, then reload for really top performance.

Believe it or not, the .35 Remington fits the bill better than any commercial cartridge presently available. Its case capacity is such that relatively fast-burning powder is used in the factory loads, so factory-load velocity is reasonable from a short pistol barrel and the accuracy is excellent. In other words, the non-reloading handgun hunter can do very well using factory ammunition. And the handloader—well, he has such a selection of bullets and powders available to him that he can tailor his loads to perfectly fit any situation from deer hunting to moose hunting to metallic silhouette competition.

While the .35 Remington case is not as heavy and strong as, say, the .308 Winchester or .30-06, it's still strong and is capable of handling pressures well in excess of the 35,000 c.u.p. industry standard set for it. This relatively low pressure standard

continued on page 69

This exploding jug of water shows the shocking power of the 200-grain Hornady bullet from the T/C's 14-inch barrel. The jug was set 100 yards away, not several feet away as is often done for dramatic effect.



While the recoil of the heavier loads in the .35 Remington is rough, it's not overly punishing. Still, recoil is heavy enough that the shooter probably won't want to spend the afternoon shooting the .35 just for fun!

continued from page 36

reflects the strength of the case itself. The Contender, the only handgun presently chambered for the .35 Remington, will handle a lot more pressure safely than will a good many of the lever guns chambered for the cartridge over the years.

The .35 Remington has a maximum case length of 1.920 inches and should be trimmed back to 1.910 inches. In my tests I found that the cases have a tendency to stretch rather quickly, so it's important that the handloader keep close tabs on case length. If the case is allowed to stretch beyond the 1.920-inch maximum, the mouth must be jammed into the throat where it can't expand properly to release the bullet when the round is fired. This results in excessively high breech pressure and sub-par accuracy. In the Contender, a long case also makes it difficult to completely lock the action closed.

While the shoulder angle of the .35 Remington is 23 degrees, 25 minutes, there is almost no shoulder area to work with owing to the diameter of the case body in relation to the diameter of the neck. At its most forward point, where the shoulder starts, the case body has a diameter of .425 inch. The proper outside neck diameter is .384 inch. In other words, there is just a .041-inch difference between body and shoulder. This is of concern to the handloader because in the Contender it's essential that the headspacing—the distance between the datum line of the shoulder and the standing breech—be perfect in order to guarantee reasonable case life. When sizing the case you must be very careful not to move the shoulder back. If you do the headspace is changed. What then happens is that the firing pin blow shoves the case forward in the chamber until the shoulder contacts its stop in the chamber. Then the cartridge fires. The case wall expands and grabs the chamber wall, but the solid head of the case is driven rearward by pressure until it contacts the standing breech. This movement is very slight, but it's enough that the case stretches at the web, forming a thin spot in the brass and the case will separate within the first two or three reloadings. Probably the best way to handle the headspacing of the .35 Remington is to start out with new cases. I like to use factory ammo, firing it in my pistol. Then I set my full-length sizing die so that sizing stops exactly at, or just above, the shoulder/neck junction. In this way I'm not disturbing the shoulder, which, thanks to the

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IN MARCH:

GUNS AND THE MEDAL OF HONOR

.35 REMINGTON

continued from page 69

initial firing being done in my pistol, is perfectly set for headspace.

As I mentioned, factory .35 Remington ammunition performs very well in my Super 14 Contender. Using a 3X scope, I was able to get three-shot groups at 100 yards that averaged 1¼ inches with Federal 200-grain factory ammo and 1½ inches with Remington 150-grain fodder. The velocity of the Federal load from the Contender was 1,806 feet per second (fps) while the 150-grain Remington moved out at 1,934 fps. Neither of these are spectacular velocities, but nor are they bad considering the 14-inch barrel and excellent accuracy. And, in case it hasn't dawned on you, that 200-grain bullet from the Federal load is still moving at 1,500 fps at 100 yards and hits out there with just over 1,000 foot pounds of energy—about the same energy as a 240-grain .44 Magnum load develops at the muzzle!

Handloading, though, really brings out the best of the .35 Remington in a handgun. The list of bullets that can be used successfully in the pistol is almost endless. While pistol bullets of .357-inch diameter shoot very well in my Contender, I recommend that soft point and hollow point designs be used only for small-game hunting and plinking. They're much too soft and thin-jacketed to be effective on even the smallest deer at .35 Remington velocities. Hit a buck with one of these and you'll likely get a nasty, superficial wound, but no penetration. However, .357-inch pistol bullets like the 180-grain Hornady JTC-SIL, 180-grain Sierra Full Profile Jacket and 180-grain Speer FMJ Flat Point are excellent choices for silhouette shooting.

The .35 Remington cartridge is designed for bullets of .358-inch diameter and with those weighing 180 grains or more; this cartridge in a 14-inch barreled pistol is a great choice for hunting big game. And even here you have quite a choice of bullet styles and weights. I see no reason why the 180-grain Speer Flat Nose shouldn't be an excellent choice for pronghorns and whitetails, both of which are small animals with fragile bone structures. But for mule deer, elk, black bear and moose, I'd prefer one of the excellent 200-grain bullets. Because most of my hunting is done where shots will come at 100 to 200 yards in relatively open country, I prefer pointed designs—the 200-grain Hornady Spire Point or the 200-grain Barnes spitzer. At under 100 yards on these animals, one of the 200-grain round nose bullets would be best. I did a little work with the 250-grain Hornady round nose bullet and was pleasantly surprised. I was able to push this heavyweight along at 1,700 fps and the accuracy with it was excellent.

All of the author's accuracy testing of the .35 Remington/Contender was done from this bench fixture.

The accompanying table gives all of the pertinent data on a variety of .35 Remington loads that worked well in my Contender Super 14 pistol. However, because there is no good pistol handloading data available for this cartridge, I was working in the dark on load development. When you go to faster-burning powders than those the bullet manufacturers have checked for pressure, you've got to be very careful. I used case head expansion, primer condition and ease of extraction as indicators to warn me when I was nearing maximum with the powder charges. However, even these can be wrong and they certainly apply only to my particular chamber. Therefore, I strongly recommend that you reduce the powder charges shown by 10 percent and work up very carefully in any other .35 Remington pistol. Chamber and barrel dimensions, temperature, humidity and bullet seating depth are all factors that influence chamber pressure, so a load that's safe in my Contender may be dangerous in another. The .35 Remington isn't a wildcat, but my loads for the pistol are certainly a departure from the norm so be careful when you load this cartridge for a pistol.

After doing a lot of work with the .35 Remington Contender, I'm convinced that the cartridge is the answer to the handgunner's prayer for a commercial cartridge for handgunning big game. As long as it's used in a pistol with a barrel at least 14 inches long, it's a better performer with bullets weighing over 180 grains than is the .357 Herrett, a cartridge Steve Herrett and I developed especially for 10-inch barreled guns. Smaller cartridges like the .357 Magnum and .357 Maximum aren't even in the same league as the .35 Remington when it comes to big game. Larger cartridges, like the commercial .358 Winchester and the wildcat .358 JDJ, are a little more powerful than the .35 Remington, but because they have powder capacities greater than can be utilized efficiently in short pistol barrels, you use a lot more powder and must endure considerably more recoil to realize only a slight velocity edge over the .35 Remington.

If all of this sounds like I'm impressed, you're right. For the good of the sport I think it's time we standardized on a few good cartridges for handgun hunting and the .35 Remington is perfect. It's already commercially available, it can be easily adapted to break-open, falling-block and bolt-action pistols, and it wouldn't be difficult for ammunition manufacturers to offer commercial loadings tailored specifically for handguns.

combining equal parts by weight of resorcinol (technical or U.S.P. grade) and ethanol (95 percent or anhydrous commercial ethyl alcohol) and stirring or shaking at room temperature for 15-20 minutes. A 50-50 solution is convenient to prepare and gives some margin for the evaporation of ethanol in use. The concentration is not critical.

DIRECTIONS FOR USE

1. Thoroughly clean and dry both mating surfaces.
2. Paint the solution generously on both surfaces with an ordinary, flat paint brush. The solution has a very low viscosity, and run-off from the painted surfaces is prevented by working the brush over the surfaces two or three times.
3. After 20-30 seconds, the two mating surfaces soften enough so that they cannot be wiped dry by a close fit. The generous application of solvent and the waiting period are necessary to ensure strong, tight joints. Longer waiting periods (up to 3 minutes) will generally improve joint strength.
4. After the softening period, press the mating surfaces together and clamp in place under light pressure for 10-15 minutes at which time the joint strength is adequate for light handling. The bond reaches workable strength in about 90 minutes and approaches full strength in 24 hours. As with aqueous phenol, curing can be accelerated by heating in a circulating air oven at 66°C (150°F) for 30 minutes.

Warning: See warning under aqueous phenol.

Nylon-Bodied Calcium Chloride-Ethanol

This adhesive may be used in applications involving foods and potable water supplies. It is not corrosive or toxic and has no disagreeable odor. There is no danger of skin burns.

The recommended formulation for this solvent cement is 10 parts of ZYTEL® 101 NC-10, 22.5 parts calcium chloride and 67.5 parts ethanol. Add 22.5 parts calcium chloride (analytical reagent grade) to 67.5 parts ethanol (95 percent or anhydrous commercial ethyl alcohol) and shake for two hours or until the calcium chloride is dissolved. Filter through a fritted glass funnel to clarify the cloudy solution. Add 10 parts of ZYTEL® 101 NC-10, ground to pass a #10 screen and stir overnight. The resultant solution is a clear, honey-like solvent cement that will last indefinitely.

Finely ground ZYTEL® 101 may be obtained from:
LNP Corporation
412 King Street
Malvern, PA 19355

DIRECTIONS FOR USE

1. Paint the cement on the surfaces to be joined with a brush or cotton applicator.
2. After about 30 seconds, assemble the parts and hold under contact pressure.
3. After 30 minutes, the joint can be lightly handled, but 24 hours are required to attain the full bond strength.

Note: This solvent cement is not hazardous and no special precautions need to be taken to prevent skin burns. It is especially useful for nylon resin applications where nontoxicity is desirable.

Nylon to Metals

A variety of thermosetting adhesives can be used to cement ZYTEL nylon resin to metals. The best bonding procedures are usually based on the manufacturers' instructions. An example of a bonding procedure is shown for "Phenolweld" #7.[1]

"Phenolweld" #7[1]

1. Clean metal surface.
2. Apply resin to both surfaces.
3. Dry separately ¼ hour at room temperature.
4. Clamp or press cemented surfaces together.
5. Press ½ hour at 144°C (300°F).

Examples of adhesives used for bonding ZYTEL nylon resin to a wide variety of substrates are listed below:

"Resiweld" 7004 – Nylon to wood, metal and leather
"Resiweld" 7006 – Nylon to metal and vinyl stock
H. B. Fuller Company
2400 Kasota Ave.
St. Paul, Minnesota 55018
"Apco" 5363
Applied Plastics Co., Inc.
612 East Franklin Ave.
El Segundo, CA 90245

[1]Hardman, Inc., 600 Cortland St., Belleville, NJ 07019

Copy BARBER - PRESALE P 0136073

DATE 7/7/86

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

XP-100, .223 cal.
Bill contour same as 7 mm Remington

Note
At request of Bruce Law, 1st year is shown as 1986 not 1987.

II. Development Responsibility (Check One) X Research _____ Production

III. Development Schedule

Prototypes Available _____ 3 Mos. Inventory Established _____

Trial & Pilot Complete 6 months after transmittal Announce to Trade _____

IV. Estimates

	86 Years 88				
	1	2	3	4	5
• NET SELLING PRICE	230.94		254.61		
• Forecast Sales Volume (M Units)					
Total	2281		2281		
Incremental	2000		2000		
• Pretax Earnings ($M)					
~~Full Book~~ / ~~Incremental~~ } Project Basis	$ 91 m		$ 104 m		
• Program Investment ($M) (Incremental Costs to Implement)					
Research Expense	28M				
Production Expense	25M				
Permanent Investment	5M				
Increase in Working Capital	208 m		317 m		
• Net Return on Program Investment (Years 1 & 3 only)	13.5%		14.1%		

- Payback (# of Years) 4.2 years
- Manpower (Man Years of Effort) Mktg. 0 Prod. .2 Res. .1
- Probability of Success (Check One) X High _____ Medium _____ Low

V. Preparers

Marketing _____ Production [signature]

Research _____ Business Services _____

NEW PRODUCT DEVELOPMENT REQUEST

DATE 3/22/85

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

Model XP-100 .223 caliber
Caliber addition to XP-100 line (.221 Fireball to be obsoleted)
Bbl. contour same as 7MM Benchrest

II. Development Responsibility (Check One) X 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 $28M
  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) X High _____ Medium _____ Low

V. Preparers

Marketing_____ Production_____

Research Terry C. Douglas Business Services_____

BARREL CONTOUR [illegible]

XP-100 .223 CAL

3/22/8

( ) BUILD

BUILD PROTOTYPES 6 @ $1000 = $6000

WAREHOUSE GUNS FOR PARTS 4 @ $300 = 1200

TEST

ACCURACY - 5 GUNS X 200 RDS = AMMO 1000 RDS

BLOW UP STRENGTH (1 GUN)

FUNCTION

ENDURANCE - 2 GUNS X 2500 RDS = AMMO 5000 RDS

1 MAN X $27/HR X 3 WKS X 40 HRS = $3240 $3240

ENGINEERING & DESIGN TIME

1 MAN X 3 WKS X $47/HR X 40 HRS = $5640 $5640

MAN YEARS = $\frac{120 \text{ HRS}}{2080}$ = .0577 = .06 MAN YRS

AMMUNITION

6000 RDS @ $1/RD = $6000

SUBTOTAL $22,080

CONTINGENCY @ 25% 5,520

$27,600

SS

$28,000

PROBABILITY OF SUCCESS - HIGH

RD-49-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington DUPONT PETERS DUPONT

file XP-100

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

cc: W.H. Coleman, II/File
~~L.W. Bower~~
T.C. Douglas
J.R. Snedeker
A.A. Hugick
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
REPORT# 862332
OCTOBER 14, 1986

MODEL XP-100 35 REM. CALIBER DESIGN VERIFICATION

MODEL XP-100 35 REM. CALIBER DESIGN VERIFICATION

ABSTRACT:

The Test and Measurement Laboratory finds the Design Verification Test of the Model XP-100 35 REM caliber to be acceptable. The testing consisted of 100 yard accuracy and endurance.

1. Four pistols were selected for the accuracy test, two each from the group size extremes recorded from previous Gallery testing. The accuracy was shot offhand by A.A. Hugick.

2. The endurance test consisted of the firing of 9000 rounds, 6000 rounds through one action, and 3000 rounds through another action. A total of six stocks were used in the endurance. Four stocks were subjected to 1000 rounds each, and the other two stocks were subjected to 2000 rounds each. Some minor seam separation was noted, at the front take down screw hole, at the 1000 and 1400 round levels; however, it was not enough to interfere with the function or the safety of the pistols. One stock was subjected to an additional 1000 factory rounds and 20 Proof rounds, to verify that the separation would not interfere with the function or the safety of the pistol.

Prepared by: F.L. SUPRY
Date Prepared: 10/14/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab

J.R. Snedeker 14Oct86

W.H. COLEMAN, II
New Products Research Lab Director

W.H. Coleman II 10/15/86

REP.#862332 W.O.# C-0801

MODEL XP-100 35 REM. CALIBER DESIGN VERIFICATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

On August 21, 1986 a request to conduct a Design Verification Test on the Model XP-100 35 REM. caliber pistol was received by the Test Lab. The test would consist of endurance and accuracy testing. The purpose of the endurance test is to check the stocks joints. The purpose of the accuracy test is to compare the previous mechanical testing results to the offhand results.

SCOPE OF TEST:

To determine if the XP-100 chambered in the 35 REM. caliber, would meet Remington Specifications set by the Research Design Section.

TEST RESULTS:

The Model XP-100, chambered in the 35 REM. caliber, was found to be acceptable in all phases of the Design Verification Test.

REPORT TEXT:

1. ACCURACY:

The Remington standard for the XP-100, chambered in the 35 REM caliber has not been established. The proposed standard is 3.5 inch group size at 100 yards.

A. Four (4) pistols were tested for 100 yard accuracy.

B7515993 B7510556 B7512645 B7516033

B. Using 200 grain Remington ammunition, the following 5 shot group size averages were shot:

	ACCURACY DEVICE	OFFHAND
a. Group Size:	1.75 inches	3.41 inches

C. Using 150 grain Remington ammunition, the following 5 shot group size average was shot:

	ACCURACY DEVICE	OFFHAND
a. Group Size:	Not Available	2.77 inches

D. Accuracy results (200 gr. and 150 gr.) per individual pistol are located in the appendix of this report. Since the shooter feels that it is easy to throw a shot in handgun accuracy, the results are given in the best of 5, 4, and 3 shot groups.

2. ENDURANCE:

A total of 9000 rounds were fired through 2 actions, 6000 on action #7513713, and 3000 on action # 7506066. Six (6) stocks were tested, 4 stocks were shot 1000 rounds each, and 2 stocks were shot 2000 rounds each. Some minor separation was noted; however, it did not interfere with the function or safety of the pistols. One of the stocks, with 2000 rounds, was fired an additional 1000 factory rounds and 20 Proof rounds with no increase in the minor separation.

A. 1000 ROUND LEVEL RESULTS:

a. At the 1000 round inspection, three stocks showed a small separation at the rear of the front take down screw hole, near the recoil lug.

B. 2000 ROUND LEVEL RESULTS:

a. At the 1400 round inspection both stocks showed a separation at the front and rear of the front take down screw hole.

2. ENDURANCE (continued)

B. 2000 ROUND LEVEL RESULTS: (continued)

b. At the 2000 round inspection, the separation showed no increase.

C. 3000 ROUND AND 20 PROOF ROUND LEVEL RESULTS:

a. There was no increase in the length of the separation.

b. The separation appeared to be due to the area being difficult to retain uniform adhesion during the assembly operation as opposed to a functional failure. Refer to report supplement.

TEST PROCEDURE:

1. ACCURACY:

A. The accuracy was shot by A. Hugick (Research) at the R & D 100 yard range. The pistols were held at the grip with the right hand, and at the stock, at the center of the barrel, with the left hand. The elbows were bent slightly, and the pistol was rested on a sandbag.

B. Leupold bases (standard long action) and Leupold one (1) inch rings were used, in conjunction with a Redfield 2 1/2X long eye relief pistol scope.

C. Remington ammunition, R35R1 (Code E24IC260L) 150 grain and R35R2 (Code B15RD5548) 200 grain, was used for the 100 yard accuracy test.

D. Before shooting the 100 yard accuracy test, the bores on each pistol were brushed with Hoppe's No. 9 solvent and patched dry.

E. A total of four (4), five (5) shot groups were shot with each pistol. The pistols were cooled between each group, and one (1) "warmer" shot was fired before the next group was shot.

F. The patterns were analyzed for group size, horizontal spread, and vertical spread. The best of 5, 4, and 3 shot group averages were calculated for each pistol.

G. A summary sheet was written and included in the appendix of this report.

TEST PROCEDURE: (continued)

2. ENDURANCE:

A. The endurance was shot by H. Weaver, D. Thomas, and F. Supry (Research) in the R&D shooting room.

B. A stock was assembled to the action and the pistol placed in a shooting harness attached to a shooting jack.

C. The stock was removed and inspected every 200 rounds.

D. Action #B7506066 was used to endurance 3 stocks to 1000 rounds each. No malfunctions occurred during the firing of the 3000 rounds.

E. Action #B7513713 was used to endurance 1 stock to 1000 rounds and 2 stocks to 2000 rounds each. No malfunctions occurred during the firing of 5000 rounds.

F. A new recoil rest was fabricated, by Robert Howe, for the XP-100. This rest simulates hand holding of the stock and allows unrestricted travel of the assembly if total stock separation were to occur.

G. Action #B7513713 and the new rest were used to endurance one of the 2000 round stocks to 3000 rounds, and to fire 20 Proof rounds through the stock after the 3000 round level.

H. All the additional shooting was done by A. Hugick, and the inspections were done by F. Supry and A. Hugick.

I. The stock with 3000 rounds was sectioned and examined for adhesion.

J. A decision to accept the design of the XP-100 chambered in the 35 REM caliber was made after the final results were reviewed with W.H. Coleman, II.

APPENDIX

100 YARD ACCURACY

GALLERY ACCURACY DEVICE vs OFF HAND SHOOTING (BEST GROUPS)

			OFF HAND		
SERIAL NUMBER	AMMO	GALLERY DEVICE	BEST 5	BEST 4	BEST 3
B7515993	200	2.0 INCHES	2.5 IN.	1.5 IN.	0.8 IN.
	150	N.A.	2.2 IN.	2.0 IN.	1.8 IN.
B7512645	200	1.5 INCHES	3.2 IN.	2.0 IN.	1.0 IN.
	150	N.A.	2.5 IN.	1.1 IN.	0.7 IN.
B7510556	200	2.0 INCHES	3.8 IN.	2.5 IN.	1.2 IN.
	150	N.A.	2.5 IN.	2.0 IN.	0.7 IN.
B7516103	200	1.5 INCHES	1.6 IN.	0.5 IN.	0.3 IN.
	150	N.A.	2.6 IN.	2.0 IN.	1.0 IN.

INDIVIDUAL ACCURACY RESULTS

			OFF HAND		
SERIAL NUMBER	AMMO	GROUP NUMBER	BEST 5	BEST 4	BEST 3
B7515993	200	1	4.5 IN.	3.8 IN.	2.8 IN.
		2	2.5 IN.	1.5 IN.	0.8 IN.
	150	1	2.2 IN.	2.0 IN.	1.8 IN.
		2	3.5 IN.	3.1 IN.	2.0 IN.
B7512645	200	1	3.2 IN.	2.0 IN.	1.0 IN.
		2	5.1 IN.	2.9 IN.	1.8 IN.
	150	1	2.5 IN.	1.1 IN.	0.7 IN.
		2	2.5 IN.	2.1 IN.	1.2 IN.
B7510556	200	1	4.9 IN.	4.5 IN.	1.7 IN.
		2	3.8 IN.	2.5 IN.	1.2 IN.
	150	1	3.0 IN.	2.2 IN.	1.2 IN.
		2	3.7 IN.	2.0 IN.	0.7 IN.
shot at end of test		3	3.1 IN.	2.2 IN.	2.0 IN.
		4	2.5 IN.	2.3 IN.	1.2 IN.
B7516103	200	1	1.7 IN.	1.3 IN.	1.2 IN.
		2	1.6 IN.	0.5 IN.	0.3 IN.
	150	1	2.6 IN.	2.0 IN.	1.0 IN.
		2	3.3 IN.	1.9 IN.	1.3 IN.

TEST AND MEASUREMENT LAB SUPPLEMENT

DATE: 10/16/86

REPORT NO.: 862332 WORK ORDER NO.: C-0801

WRITTEN BY: F.L. SUPRY

TEST TYPE: SECTION AND EXAMINE XP-100 35 REM CALIBER STOCK

REASON FOR TEST :

To examine the adhesion of the XP-100 35 REM stock.

EQUIPMENT REQUIRED :

The stock with 3000 rounds, a band saw, and personnel.

TEST PROCEDURE :

The stock was cut into six sections and labeled as follows:

#1 5.75 inches, measured from the muzzle end of the stock.
#2 2.80 inches, cutting through the trigger guard.
#3 2.40 inches, cutting 1 inch beyond the front take down screw.
#4 1.80 inches, cutting 0.25 inches in front of rear take down screw.
#5 3.20 inches, from #4 cut to rear of stock.
#6 3.50 inches, the grip, measured at the centerline, from the base.

Each section was examined by A. Hugick, R. Howe, and F. Supry.

TEST RESULTS :

The separation of the glued surfaces in section #3, was due to the area being difficult to retain uniform adhesives during the assembly operation, and not that of a functional failure.

There was no stock separation in any of the sections, except section #3 at the front take down screw hole. That separation was along the horizontal area of the hole and 0.9 inches down the vertical, stopping at the start of the horizontal area leading to the grip.

Section #3 was fractured to further examine the adhesion. The start of the horizontal leading to the grip was fused with a good glue joint; but, the glue in the vertical was very sparse.

RD-49-B

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"_____

cc: W.H. Coleman, II/File
J.W. Bower
T.C. Douglas
J.R. Snedeker
A.A. Hugick
F.L. Supry

RESEARCH TEST AND MEASUREMENT REPORT
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Prepared by: F.L. SUPRY
Date Prepared: 10/14/86

proofread and cleared by:

J.R. SNEDEKER, Research Supervisor
Test, Measurement & Mech. Analysis Lab

J.R. Snedeker 14oct86

W.H. COLEMAN, II
New Products Research Lab Director

W H Coleman II 10/15/86

REP.#862332 W.O.# C-0801

MODEL XP-100 35 REM. CALIBER DESIGN VERIFICATION

TO: J.R. Snedeker
FROM: F.L. Supry

INTRODUCTION:

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B7515993 B7510556 B7512645 B7516033

B. Using 200 grain Remington ammunition, the following 5 shot group size averages were shot:

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a. Group Size:	1.75 inches	3.41 inches

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D. Accuracy results (200 gr. and 150 gr.) per individual pistol are located in the appendix of this report. Since the shooter feels that it is easy to throw a shot in handgun accuracy, the results are given in the best of 5, 4, and 3 shot groups.

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a. At the 1400 round inspection both stocks showed a separation at the front and rear of the front take down screw hole.

2. ENDURANCE (continued)

B. 2000 ROUND LEVEL RESULTS: (continued)

b. At the 2000 round inspection, the separation showed no increase.

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a. There was no increase in the length of the separation.

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G. A summary sheet was written and included in the appendix of this report.

TEST PROCEDURE: (continued)

2. ENDURANCE:

A. The endurance was shot by H. Weaver, D. Thomas, and F. Supry (Research) in the R&D shooting room.

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APPENDIX

100 YARD ACCURACY

GALLERY ACCURACY DEVICE vs OFF HAND SHOOTING (BEST GROUPS)

			OFF HAND		
SERIAL NUMBER	AMMO	GALLERY DEVICE	BEST 5	BEST 4	BEST 3
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INDIVIDUAL ACCURACY RESULTS

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SERIAL NUMBER	AMMO	GROUP NUMBER	BEST 5	BEST 4	BEST 3
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		2	3.7 IN.	2.0 IN.	0.7 IN.
shot at end		3	3.1 IN.	2.2 IN.	2.0 IN.
of test		4	2.5 IN.	2.3 IN.	1.2 IN.
B7516103	200	1	1.7 IN.	1.3 IN.	1.2 IN.
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	150	1	2.6 IN.	2.0 IN.	1.0 IN.
		2	3.3 IN.	1.9 IN.	1.3 IN.

TEST AND MEASUREMENT LAB SUPPLEMENT

DATE: 10/16/86

REPORT NO.: 862332 WORK ORDER NO.: C-0801

WRITTEN BY: F.L. SUPRY

TEST TYPE: SECTION AND EXAMINE XP-100 35 REM CALIBER STOCK

REASON FOR TEST :

To examine the adhesion of the XP-100 35 REM stock.

EQUIPMENT REQUIRED :

The stock with 3000 rounds, a band saw, and personnel.

TEST PROCEDURE :

The stock was cut into six sections and labeled as follows:

#1 5.75 inches, measured from the muzzle end of the stock.
#2 2.80 inches, cutting through the trigger guard.
#3 2.40 inches, cutting 1 inch beyond the front take down screw.
#4 1.80 inches, cutting 0.25 inches in front of rear take down screw.
#5 3.20 inches, from #4 cut to rear of stock.
#6 3.50 inches, the grip, measured at the centerline, from the base.

Each section was examined by A. Hugick, R. Howe, and F. Supry.

TEST RESULTS :

The separation of the glued surfaces in section #3, was due to the area being difficult to retain uniform adhesives during the assembly operation, and not that of a functional failure.

There was no stock separation in any of the sections, except section #3 at the front take down screw hole. That separation was along the horizontal area of the hole and 0.9 inches down the vertical, stopping at the start of the horizontal area leading to the grip.

Section #3 was fractured to further examine the adhesion. The start of the horizontal leading to the grip was fused with a good glue joint; but, the glue in the vertical was very sparse.

XP 100 862332

DESIGN ACCEPTANCE

Bower Hugick

Snodeker Douglas

Report accepted
10/14/86

Box # 17

(78)

AUG. 21, 86

XP-100 35 REM DESIGN TEST

THESE XP100 35 REM BOLT ACTION PISTOLS MAYBE USED FOR WRITER SEMINAR GUNS AND/OR ILION SITE DEER HUNTING FIELD TEST GUNS. PLEASE HANDLE WITH CARE. THANKS!

THE 35 REM IS AN ADDITIONAL CALIBER TO EXISTANT XP 100 PRODUCT LINE.

PROPOSED TEST AREA CONSIDERATION AS VIEWED FROM DESIGN.

I. HEADSPACE - MIN. AND MAX.
THE LAB GAGES ARE LOCATED IN CUSTOM SHOP (WAYNE CABLE) AND WERE LOANED TILL THEIR GAGES WERE READIED.

II. ACCURACY - FIRE TWO FIVE SHOT GROUP PER GUN, SCOPED, FROM A BENCH AT A100yd TARGET.
(X) ONE GROUP WITH R150
(X) ONE GROUP WITH R200.
DO NOT PUT TARGET ON COMPUTER - INSTEAD READ ~~BEST~~ FIVE SHOT GROUP SIZE, BEST FOUR SHOTS IN GROUP, AND BEST THREE

SHOTS IN GROUP.

NOTE MALFUNCTION EXPERIENCED WHILE SHOOTING ACCURACY.

III. SELECT A BEST GROUPER AND A WORST GROUPER AND FIRE ACCURACY WITH WIN. AND FED. 35 REM CALIBER AMMOS.

IV. STOCK JOINT ENDURANCE

FIRE ONE GUN TO A 1000 ROUND LEVEL WITH GUN FIXTURED IN JACK PLACED SOFT RECOIL REST. INSPECT STOCK JOINT EVERY 200 ROUNDS FOR GLUE BOND FAILURES. RECORD AND MARKER PEN INDICATE SEPERATION LENGTHS EXPERIENCED.

NOTE MALFUNCTIONS EXPERIENCED WHILE SHOOTING ACCURACY.

STOCK JOINT SEPERATION MAY FIRST OCCUR AT FRONT OR NEAR STOCK SCREW LOCATION INSIDE OF STOCK, ADJACENT TO RECOIL LUG.

FUTURE OR CONTINGENT TEST ACTIVITY MAY FOLLOW WITH THE FOLLOWING.

- BLACK EXPERIMENTAL ST801 (ST SUPERTUF ZYTEL STOCK MATERIAL.
- NYLON BONDED CALCIUM CLORIDE ETHAN ADHESIVE - SOLVENT. THIS MATERIAL IS NON-TOXIC WHILE PHENOWELD IS POI
- IRONSIGHTS - FIT, POI/POA, ADJUS
- MAGNA PORTING -

SPECIAL TEST REPORT

MODEL XP100 35 SHOOTER _____ DATE 8 08 86

Gun No.	Ga./ Cal.	Heavy Jack Rds.	Heavy Jack Type	Heavy Jack Results	Light Jack Rds.	Light Jack Type	Light Jack Results
6066 ✓	35	5	200	2.0 ACTION USED IN ENDURANCE ①, ②, ③			
4009 ✓		5	↓	2.2 x stock used in endurance ③			
4311 ✓		↓	↓	1.5			
6018 ✓		↓		1.5			
5993 ✓		↓		2.0			
0556 ✓				2.0			
3713 ✓				2.5 ACTION USED IN ENDURANCE ④, ⑤, ⑥			
6033 ✓				1.5			
2645 ✓				1.5			
3 76 ✓				1.5			
0477 ✓				1.7			
0588 ✓				1.5 x stock used in Endurance ②			
3226 ✓				1.5			
6033 ✓				1.5			

SERIAL NUMBER	CALIBER	NOTES
B7510477 D	308 WIN. ✓	—
B7516103 ? (NOT HERE)	223 REM.	—
B7514311 D	308 WIN ✓	—
B7510556 D	223 REM	—
B7506033 D	NONE LISTED	—
B7514009 D	223 REM	—
B7513713 D	308 WIN ✓	—
B7509847 SCRAP - RETURNED	7MM-08 REM ✓	—
B7505993 D	221 REM	SIGHTS - SHOTGUN
B7513096 D	308 WIN ✓	—
B7506018 D	7MM BR REM ✓	—
B7513226 D	308 WIN ✓	—
B7512645 D	7MM-08 REM ✓	—
B7513226 D	308 WIN ✓	—
B7506066 D	7MM MS ✓	—
? 0588 — CUSTOM SHOP ORD.		

TOTAL COUNT = 15 GUNS

ABOVE XP100 INVENTORY IS SCHEDULED FOR RE-BARREL TO THAT OF 35 REM FOR DESIGN TEST, FIELD TEST, AND SPORTS WRITER SAMPLES. THIS WILL TAKE PLACE IN THE REMINGTON-ILION CUSTOM GUN SHOP. THE GUN MAY BE LIGHT WEIGHT AND EXTRA SAMPLES WILL BE PREPARED SUCH THAT FALL OF 86 DEER SEASON CAN BE A TEST OF THIS AREA OF PRODUCT DESIGN. 6/6/86 AAH

June 6 '86

WORK ORDER C0801-307-4 (2) hrs.

XP100 - ADDITIONAL CALIBERS (35 REM).

(12) HUGLIC

BARRELED ACTIONS

15?

ADAM HUGLIC (461)

* WILL BE OUT OF PLANT, JUNE 9 → 13, 86

35 REM CHAMBERS

FRONT SIGHT & SIGHT HOLES

FRONT & REAR

15°

700 CROWN