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RESEARCH TEST AND MEASUREMENT REPORT

REPORT# 890202
W.O.# 481152
FEBRUARY 21, 1989

MODEL XP-100 LINK DESIGN CHANGE

Report# 890202

Work Order# 481152

MODEL XP-100 LINK DESIGN CHANGE

ABSTRACT:

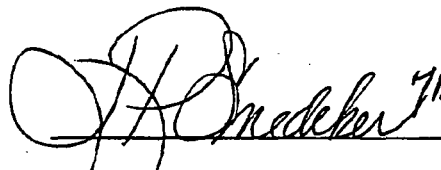
Research and Development finds the Design Acceptance Evaluation of the Model XP-100 design change, which increases the width of the slot in the front of the Link, to be acceptable. The evaluation consisted of dry cycle and live fire endurance testing on ten XP-100 pistols.

Prepared by: D.R. Thomas
Date Prepared: February 21, 1989

proofed and cleared by:

J.R. Snedeker
Staff Engineer

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

 7 March 89

 3/5/89

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MODEL XP-100 LINK DESIGN CHANGE

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

INTRODUCTION:

In February of 1989 the Research Test Lab received a request to perform a Design Acceptance Evaluation on a design change to the XP-100 Link. The change consisted of adding to the width of the slot in the front of the Link. The test consisted of dry cycle and live fire endurance of 35 Remington and 7MM BR calibers.

SCOPE OF THE TEST:

To determine if the additional slot width affects Sear engagement during use of the firearm.

TEST RESULTS:

The Model XP-100 Link design change was found to be acceptable in both phases of the Design Acceptance Evaluation.

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REPORT TEXT:

DRY CYCLE:

Sear engagement measurements varied within an .008 inch band throughout the dry cycle test in both the control group and the test group. At no time throughout the test did sear engagement fall below the min. limit of .015 inch in any of the guns.

LIVE FIRE:

Sear engagement measurements varied within a .005 inch band throughout 2000 rounds of endurance shooting in both the control group and the test group. At no time throughout the test did sear engagement fall below the min. limit of .015 inches in any of the guns.

TEST PROCEDURE:

GENERAL:

All sear engagement measurements were performed on the Deltronic DH30 optical comparator located in building 52-3 West.

DRY CYCLE:

A device was set up to cock and fire the XP-100 over an empty chamber. One control and one XP-100 with an experimental Link were used in the dry cycle phase. The sear engagement was measured before the dry cycle was started and at 500 cycle intervals up to 3000 cycles. Dry cycle testing continued from 3000 cycles to 10000 cycles, with sear engagement being measured every 1000 cycles.

LIVE FIRE:

Four control and four XP-100's with an experimental Link were used for the live fire endurance phase of the test. The control group and the experimental group each consisted of two 7MM BR caliber and two 35 REM caliber guns. Sear engagement was measured before shooting began and at 200 round intervals up to 1000 rounds. Endurance continued to 2000 rounds with measurements at 1500 and at 2000 rounds. All endurance shooting took place in the Research test lab shooting room located in building 52-1-A.

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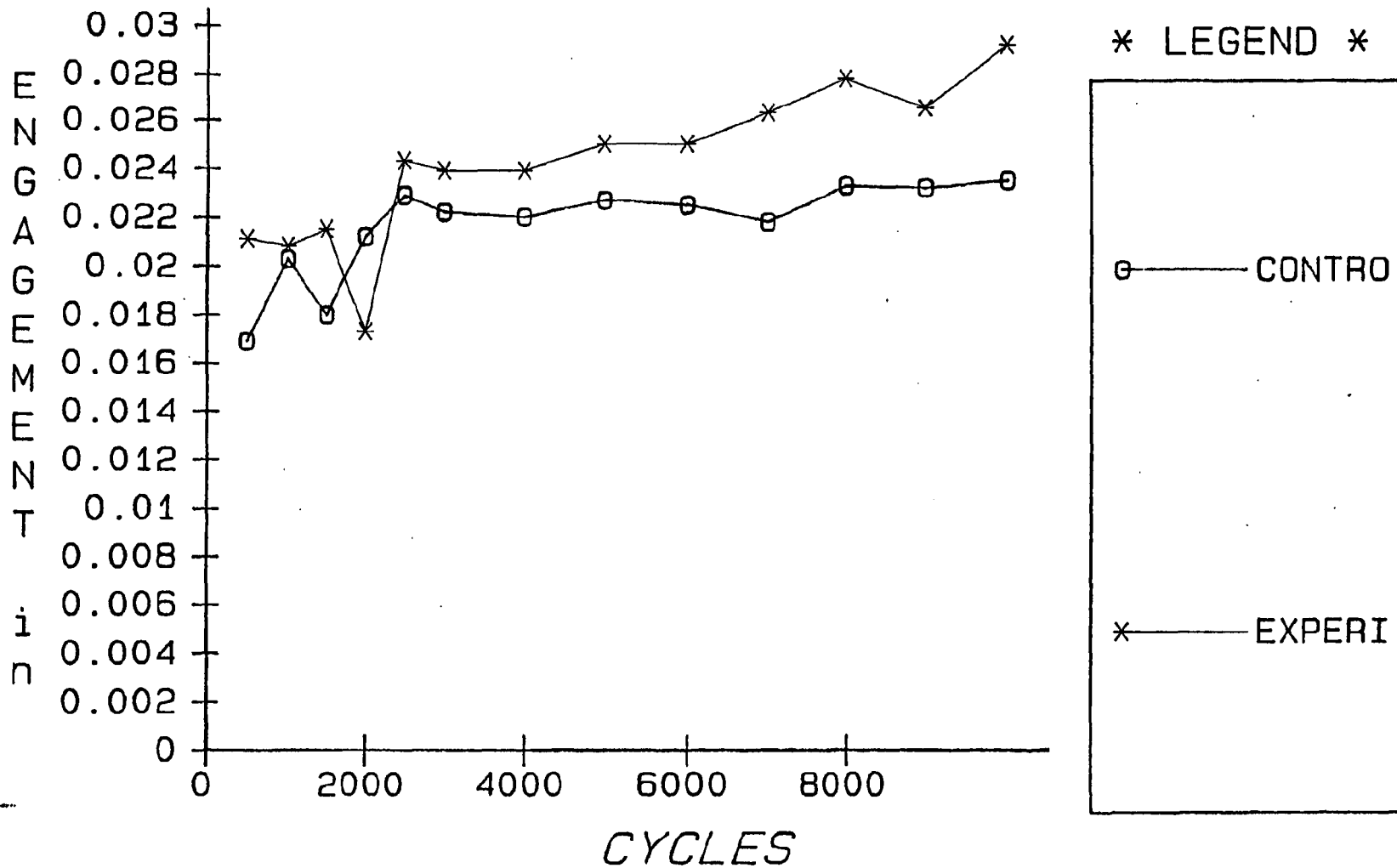
MODEL XP-100 LINK DESIGN CHANGE

APPENDIX

XP100 DRY CYCLE

CYCLE LEVEL	SEAR ENGAGEMENT	
	CONTROL 6604	EXPERIMENTAL 5583
500	0.0169	0.0211
1000	0.0203	0.0208
1500	0.018	0.0215
2000	0.0212	0.0173
2500	0.0229	0.0243
3000	0.0222	0.0239
4000	0.022	0.0239
5000	0.0227	0.025
6000	0.0225	0.025
7000	0.0218	0.0263
8000	0.0233	0.0278
9000	0.0232	0.0265
10000	0.0235	0.0292

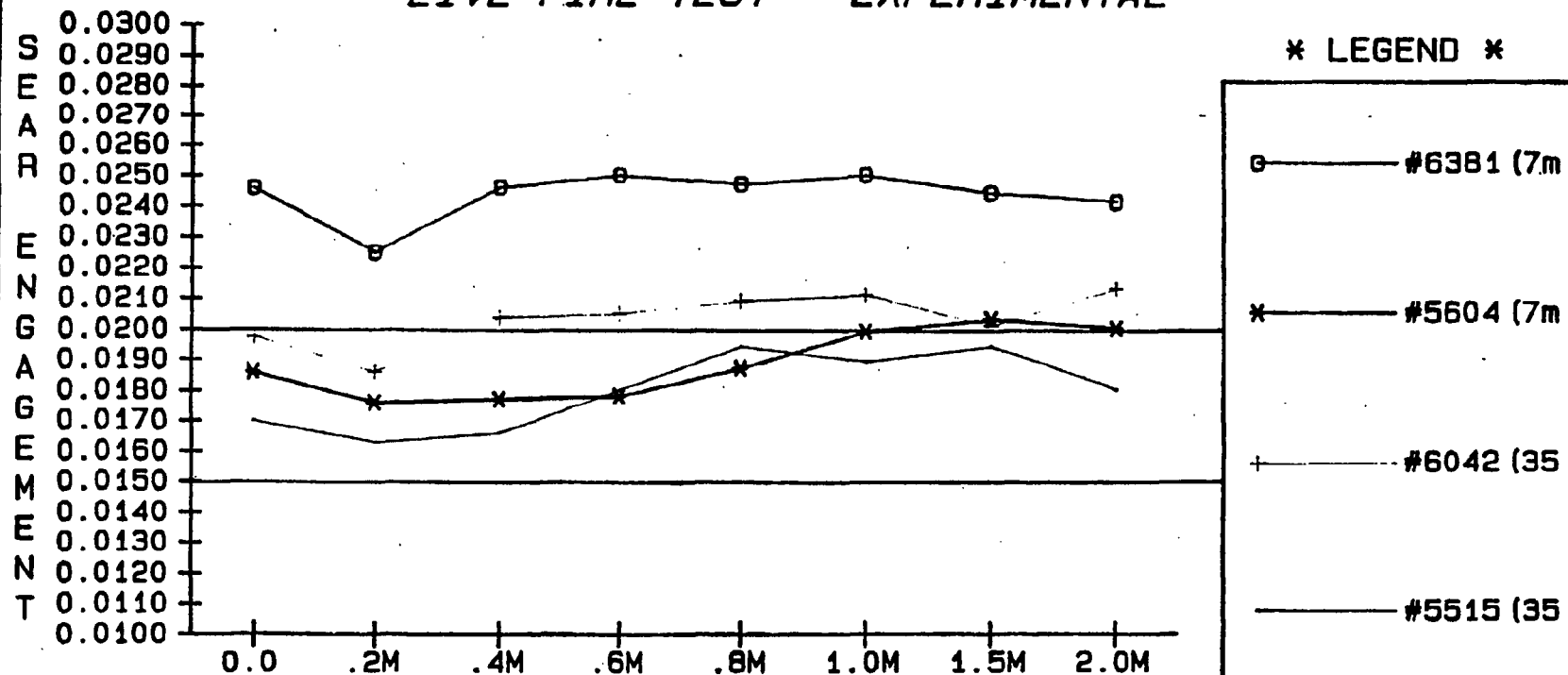
XP100 SEAR ENGAGEMENT



XP-100 SEAR ENGAGEMENT - LIVE FIRE TEST: RAW DATA TABLE

SERIAL NO.	ROUNDS							
	0.0	.2M	.4M	.6M	.8M	1.0M	1.5M	2.0M
(EXPERIMENTAL)								
#6381 (7mm)	0.0246	0.0225	0.0246	0.0250	0.0247	0.0250	0.0244	0.0241
#5604 (7mm)	0.0186	0.0176	0.0177	0.0178	0.0187	0.0199	0.0203	0.0200
#6042 (35REM)	0.0198	0.0186	0.0204	0.0205	0.0209	0.0211	0.0201	0.0213
#5515 (35REM)	0.0170	0.0163	0.0166	0.0180	0.0194	0.0189	0.0194	0.0180
(CONTROL)								
#6577 (7mm)	0.0194	0.0197	0.0206	0.0209	0.0208	0.0231	0.0220	0.0189
#6573 (7mm)	0.0212	0.0176	0.0194	0.0221	0.0200	0.0208	0.0220	0.0207
#5559 (35REM)	0.0184	0.0187	0.0187	0.0180	0.0194	0.0191	0.0190	0.0186
#5892 (35REM)	0.0186	0.0196	0.0206	0.0201	0.0216	0.0225	0.0208	0.0217

XP-100 SEAR ENGAGEMENT TEST LIVE FIRE TEST - EXPERIMENTAL



* LEGEND *

- — #6381 (7m)
- * — #5604 (7m)
- + — #6042 (35)
- #5515 (35)

XP-100 SEAR ENGAGEMENT TEST LIVE FIRE TEST - CONTROL

