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