

MEMORANDUM

Elion, New York
June 16, 1966

TO: C. B. WORKMAN

FROM: A. A. HUGICK

DROP TESTING ON MODEL 600 POWDER METAL SEARS

The enclosed drop test procedure was organized and conducted using M/600 powder metal Sears. A sample of chrome plated powder metal Sears produced to date was included for drop test purposes. Sears numbered 1 thru 5 are old style sears with the large $.003 \pm$ inch radius at the connector surface edge. Sears numbered 6 thru 8 are new sears with $.001 \pm$ inch radius at the connector surface edge.

Fire control adjustments were made by Production prior to drop testing.

Listed below are M/600 powder metal sear drop test observations:

1. The measured R_C hardness of the new PM samples was 45 R_C average versus 50 R_C average for old samples.
2. Page number 2 contains listed jar-off malfunctions encountered during M/600 drop testing.
3. Tight sear pin holes of the new sears were polished out prior to drop testing.
4. Minor chipping of sear connector edge of the old sears was noticed when examined with a 20X glass.

Recommendation

Based on M/700 and M/600 chrome plated powder metal sear testing, the new chromed powder metal sear should be considered for use in the M/600.

OAH:PT

DROP TEST PROCEDURE

MEASUREMENT and TEST LAB

I. Trigger Pull and Firing Pin Indent

- A. Take five samples.

II. Safety Mechanism Shock Test

- A. Drop gun ten inches on solid wood surface with safety "ON".
1. Butt down
 2. Muzzle down
 3. Topside down
 4. Bottom down
- B. The Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.
- C. Three drops per position.

III. Jar-Off Test

- A. Drop gun ten inches on solid wood surface with safety "OFF".
1. Butt down
 2. Muzzle down
 3. Topside down
 4. Bottomside down
- B. The Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.
- C. Three drops per position.

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DROP TEST PROCEDURE - Measurement & Test Lab

IV. Safety Operation Test

A. This test is for testing the safety mechanism.

1. Cock gun
2. Put Safety "OFF"
3. Try Trigger
4. Release the Safety
5. Pull Trigger
6. Assess if Trigger functions with Safety on
7. Assess if Firing Pin fell when Trigger was pulled

B. Make 50 trials.

V. Safety Mechanism Shock Test

A. Drop gun "waist height" on solid wood surface with safety "OFF".

1. Butt down
2. Muzzle down
3. Topside down
4. Bottomside down

B. The Trigger shall be tried after each drop to determine whether the Safety has released any mechanism which may allow firing.

C. Three drops per position.

VI. Let Off Test

A. Drop gun "waist height" on solid wood surface with safety "OFF".

1. Butt down
2. Muzzle down
3. Topside down
4. Bottomside down

B. Trigger shall be tried after each drop to determine whether the safety has released any mechanism which may allow firing.

C. Three drops per position.

VII. Gun Function Check

- A. Trigger pull
- B. Firing pin impact
- C. Take sample of fire.

AAR:IT

C.H. Morse
H.H. Walker
J.W. Brooks
H.J. Waterson
R.P. Kelly

Ilion, New York
June 23, 1966

MEMORANDUM

TO: C. B. Workman *CPM*
FROM: A. A. Hugick

DROP TESTING OF MODEL 600 POWDER METAL SEARS

The enclosed drop test procedure was organized and conducted using the M/600 with one piece powder metal sears. Drop testing at ten inches corresponds to the test manual standard and waist high drop testing (45") was included for increasing drop test severity. A sample of chrome plate powder metal sears produced to date was included for drop test purposes. Sears numbered 1 thru 5 are old style sears with the large .003+ inch radius at the connector surface edge. Sear numbered 6 thru 8 are new sears with .001+ inch radius at the connector surface edge.

Fire control adjustments were made by production prior to drop testing.

Listed below are M/600 powder metal sear drop test observations:

1. The measured RC hardness of the new PM samples was 45 RC average versus 50 RC average for old samples.
2. No malfunctions were experienced at the normal drop height of 10".
3. Page 2 contains listed jar-off malfunctions encountered during the waist high M/600 drop testing. These high drop malfunctions are similar to prior test results of May 1964 special "Jar-Off" testing.
4. Tight sear pin holes of the new sears were polished out prior to drop testing.
5. Minor chipping of the sear connector edge of the old sear was noticed when examined with a 20X glass.

RECOMMENDATION

Based on M/700 and M/600 chrome plated powder metal sear testing, the new chromed powder metal sears should be considered for use in the M/600.

AAH:s
Enc.