

August 29, 1983

TO: C. E. RITCHIE

FROM: S. R. FRANZ

REPORT TITLE: M/700 BDL LEFT HAND - EXTRA GAS RELIEF HOLE IN RECEIVER

ABSTRACT

A small quantity of L. H. M/700 receivers were run in production with two gas relief holes in the front receiver ring, (See Appendix for pictures). The extra hole is hidden by the stock on the right side of the receiver. W. A. Warren, Quality Control Foreman, sent one L. H. M/700 BDL rifle in .270 caliber to the Lab to determine what effect the extra relief hole has on stock damage or shooter safety when a primer is pierced.

SCOPE OF TEST:

To determine what effect a pierced primer on a .270 cal. proof round has on a rifle with two gas relief holes in the receiver.

TEST RESULTS

Six (6) .270 proof rounds were fired in one L. H. M/700 BDL rifle in which the primers were intentionally pierced by a sharpened firing pin tip. No damage occurred to the stock or any other part of the rifle.

In addition, the probability of shooter injury from gas leakage through the gas vents was not increased. (See Report Text for details.)

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REPORT TEXT:A. Effect on Rifle

A total of twelve (12) .270 cal. proof rounds were shot in one rifle, Serial No. B6272030. This rifle had a sharpened firing pin tip to induce pierced primers. Six of the twelve rounds had their primers pierced. After these rounds were shot, the rifle was disassembled and inspected. No damage to any of the rifle's components was found. A small circular gas mark the size of the gas relief hole was found on the stock opposite the right relief hole. (See Appendix for picture.)

This evidence confirms that gas does exit out of the right gas relief hole, but it is of such low pressure that no damage to the stock with chamber pressures as high as proof can occur.

B. Effect on Shooter

Witness paper was placed around the entire rifle to determine the amount of gas that escapes through the two gas relief holes when a primer is pierced.

This test was done once with a proof round. The witness paper was placed approximately four inches from the receiver. No marks were found on the paper after firing. This confirms that shooter safety is not compromised with the addition of one extra gas relief hole in the receiver.

TEST PROCEDURE

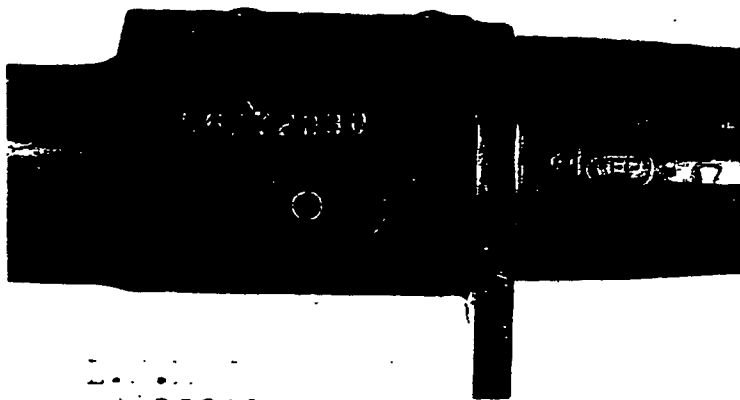
1. Sharpen firing pin tip.
2. Secure rifle in iron lung.
3. Shoot .270 cal. proof rounds.
  - a. Minimum of five pierced primers required.
4. Disassemble rifle.
5. Inspect action and stock.
6. Assemble rifle.
7. Surround rifle in iron lung with Witness Paper.
8. Shoot .270 cal. proof round.
  - a. One pierced primer required.
9. Inspect Witness Paper for gas marks.
10. Record results.

A P P E N D I X "A "

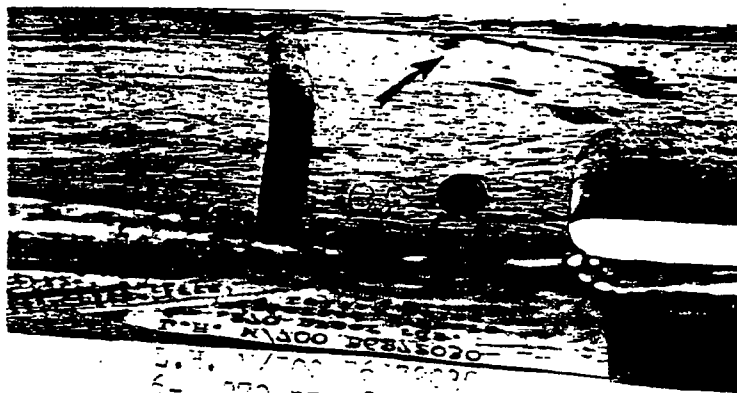
Pictures

1. Second Gas Relief Hole Location
2. Effect on Stock
3. Pierced Primers

Picture 1

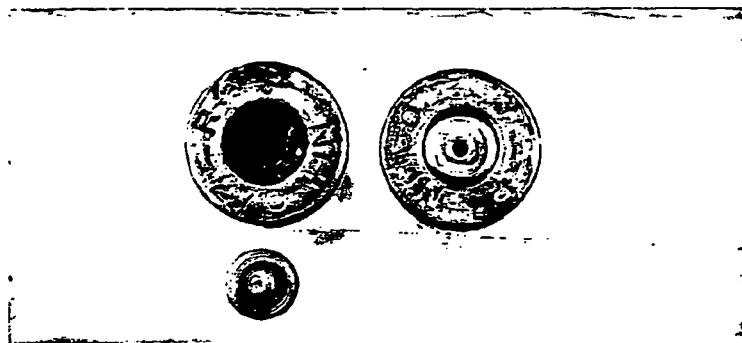


Picture 2



U.S. 11/100 1670000  
6- 1000 01100 005  
w/ pierced primers  
- 1000 relief holes in  
receiver

Picture 3



.270 proof  
primers intentionally  
pierced