

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

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1975

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Xc: E.F. Barrett
A.A. Hagick

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

Illon, New York
May 7, 1975

TO: W. E. LEEK

FROM: J. P. LINDE

SUBJECT: EVALUATION OF THE BOLT ACTION RIFLE SAFETY MECHANISMS
M/580s, 788, 600 and 700

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~~This investigation was instituted when a Model 600 was returned from Texas by a customer who in the process of unloading his gun moved the safety lever from the on safe to off safe position (so the bolt could be actuated) and the gun discharged. Upon further investigation of the incident it was determined that he had pulled the trigger with the safe in the on position. It was also determined that some Model 600s could be tricked by putting the safety lever in an intermediate position half way between on safe and off safe, pulling the trigger, releasing the trigger, push the lever to the off safe position and the gun will fire.~~

Model 600

The M/600 safety is a blocked sear design. The safety lever rotates a cam under the sear, lifting the sear off its contact with the trigger-connector. The trigger then can be pulled with no effect to the sear or firing pin assembly. In the guns in question it was found that they had inadequate sear lift on both the on safe and intermediate positions. The sear lift is the amount of clearance generated between the trigger-connector and the sear. The lifting action of the cam on the safety lever takes place when the safety lever is rotated to the on safe position. On the guns in question there was very little clearance between the sear and trigger connector. Thus when the trigger was pulled in a certain way when the gun was on safe, the connector would not return with the trigger. In this case the safety was preventing the gun from firing, thus when the safety is moved to the fire position the gun will discharge.

The initial production remedy was to swage the cam on the safety lever to provide greater lift on the sear. The greater lift provides a bigger clearance between the trigger connector and sear when the gun is in the on safe condition. The trigger can be pulled without any fear of the connector failing to return due to inadequate lift. The final inspectors, assemblers and customer repair people were re-instructed on what to look for. A test has been added at assembly to check for the sear lift from the safety actuation by use of a shim stick.

To: W.E. Leek
From: J. P. Linde
Evaluation of the Bolt Action Rifle Safety Mechanisms - M/580, 788, 600 & 700

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The guns are being checked to give at least .008 inches min. lift between the trigger-connector surface and the sear.

The holes on the fire control housing on some of the samples tested were out of control. Corrective action is being taken.

Proposed Design and Process Changes

Design

1. The safety levers have been redimensioned to give better manufacturing control of critical dimensions.
2. The dimensions on the safety lever cam were changed to give greater lift on the sear and maintain the lift longer when the safety is moved from "on safe" to "off safe".
3. The fire control housing will be changed to be common with the Model 700. It has two separate side plates which are riveted together, while the 580 has a folded assembly. The M/700 housing has a heat treated side plate with the detent hole, which gives more positive safety. The folded assembly is not heat treated and the detent holes wear and become less positive.
4. The sear has to be altered to eliminate a potential interference with the rear housing assembly pin.

Process

1. A production gage has been designed and is being built which will measure the sear lift due to the safety lever operation before the fire controls are assembled to the gun.
2. An inspection hole has been added to the new design safety lever so the cam form and its position on the safety lever can be readily inspected in purchase parts inspection.

101- W. E. Loek
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Evaluation of the Bolt Action Rifle Safety Mechanisms - M/580, 788, 600 & 700

Test Program - M/600

The current M/600 being manufactured with the swaged safety levers are being tested. They are shot with live ammunition at the start of the test to check their function. The amount of sear lift from the safety operation is measured before the start of the test as well as the force to put safe on and off. The guns are being dry cycled safe on-safe off and cock and dry fire to 50,000 cycles each. The sear lift is being measured every 5,000 cycles to determine how wear affects the sear lift over the life of the gun. The wear on the detent system, trigger connector and sear surfaces also will be checked. The test is being duplicated in a dry and oiled (WD40) condition on the trigger mechanism.

The testing will be duplicated for the redesigned fire control. From this and the original testing it is being determined the minimum safe sear lift for new guns. This report will be followed by the test report.

Status of Design Change

The design has been determined and all drawings have been completed. Design test confirmation is under way. The new drawings have been submitted to P.E. & C. for estimating purposes and the appropriate vendors contacted. As soon as the design test is satisfactorily completed the drawings will be transmitted.

Proposed Future Plans - M/600 & 700

A design investigation will be started to determine the feasibility of changing the safety design from a blocked sear system to a blocked firing pin system. The benefits of a three position safety also are being investigated.

The spring force on the detent system on the M/600 & 700 varies due to the leaf spring design, which can vary the safety operating force. The design will be reviewed to see if the system can be altered to give a more constant operating force.

Model 788 and 580 Series

The problem came to light in February when the design was changed from a blocked trigger system to a blocked sear system similar to the 600 and 700 design. This design change was instituted to standardize parts in these guns with the 540 Series, to eliminate a high scrap operation, and to obtain a more positive safety.