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Firearms Research Division

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TO: J. H. HENNINGS *JH*  
FROM: A. J. LONG  
SUBJECT: M700 - NEW DESIGN PARTS EVALUATION  
1 Trigger Block on Fire Control  
2 Weight of Pull Adjustments  
3 Bolt Lock

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Date Started: 1-23-81  
Date Completed: 2-23-81  
Work Order: C 3004 - C 2054

#### INTRODUCTION

Received from Design five (5) Model 700 rifles with the prototype bolt lock system and new design fire controls for evaluation. All test rifles have the new bolt lock and various changes to the present fire controls incorporating new design parts. A current production M700 rifle was withdrawn from the warehouse for control purposes.

#### TEST OBJECTIVE

To determine the degree of reliability of the New Design Bolt Lock, Trigger Block and Weight of Pull adjustment system supplied for test.

#### TEST OBSERVATIONS

Note: All rifles evaluated were subjected to a 100 rd. live fire test followed by a 10,000 cycle cock and fire dry cycle test.

##### A. Bolt Lock Detented and Non-detented

1. No functional or operational problems were experienced with the non-detented bolt locks during this test. A total of two (2) samples were evaluated.
2. Intermittent function of the detented bolt lock was observed on all three (3) samples evaluated.

Note: Refer to attached sheets for detailed comments on all rifles.

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TEST OBSERVATIONS Continued

B. Trigger Block and Weight of Pull Adjustment Screw and Spring

1. One (1) fire control experienced a safety related problem connected with the trigger block. The remaining four (4) fire controls functioned satisfactorily.
2. Two (2) fire controls tested experienced an increase in weight of pull measurements during this test. The remaining fire controls were acceptable.

C. Warehouse Withdrawn Control Rifle

1. No functional or operational problems were encountered with the control rifle during this test.

OBSERVATIONS PER RIFLE AT TEST COMPLETION

Test Gun #1 - Serial No. A6748248 - Non-detented Bolt Lock

- a. Trigger bent and deformed at front face.
- b. Connector exhibits wear inside of the clearance hole.
- c. Bolt lock functioning properly.
- d. Nominal wear observed on all parts.

Test Gun #2 - Serial No. A6744869 - Non-detented Bolt Lock

- a. Trigger is trapped rearward by trigger block plunger and load exerted by the safety lever.
- b. A condition exists when the trigger is pulled and the safety lever is moved to the rear (safe) position, whereupon closing the bolt the rifle will fire when the safety is pushed to the off (fire) position.
- c. Bolt Lock is functioning properly.

Test Gun #3 - Serial No. A6744915 - Detented Bolt Lock

- a. Cocking cam damaged during testing.
- b. Safety operating properly.
- c. Bolt Lock functions intermittently.
- d. Nominal wear observed on all parts.

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Test Gun #4 - Serial No. A6745544 - Detented Bolt Lock

- a. Trigger is bent and will bind in the trigger guard.
- b. Bolt Lock functions intermittently.
- c. Safety operates properly.

Test Gun #5 - Serial No. A6752773 - Detented Bolt Lock

- a. Bolt Lock retaining pin loosened while testing.
- b. Bolt lock functions intermittently.
- c. Safety operates properly.

Control Gun #1 - Serial No. A6747525 - Warehouse Sample

- a. Safety operates properly.
- b. Nominal wear observed on all parts.

TEST PROCEDURE

1. Headspace, trigger pull and firing pin indent measurements taken on all rifles as received.
2. Fired 100 rds. of mixed 30-06 ammunition thru each rifle in Test Lab shooting jacks.
3. Rifles reviewed by Design.
4. Headspace, trigger pull and firing pin indent measurements taken on all rifles after live fire test.
5. Each rifle dry cycle tested in cock and fire machines for a total of 10,000 cycles.
6. During cycle test, trigger pull and bolt lock function checked every 1,000 cycles.
7. Individual inspection of each rifle conducted at completion of dry cycle test,

DESCRIPTION OF PARTS TESTED

- A. Bolt Lock - Two (2) types.
    1. Detented (Allows unloading in "ON" safe condition)  
"Bolt lock will remain in unlocked position when depressed."
    2. Non-detented (Allows unloading in "ON" safe condition)  
"Bolt lock will automatically relatch as bolt is cycled."
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DESCRIPTION OF PARTS TESTED Continued

A. 3. Weight of Pull Adjustment Screw & Spring

"If screw is backed out by owner, sufficient spring tension will remain against the trigger to allow satisfactory connection."

4. Trigger Block

"When safety is placed in ON (safe) position, the trigger is blocked and support cannot be removed from under sear/connector surface."

FUTURE WORK

Additional samples of the non-detented bolt lock and weight of pull adjustment screw and trigger block will have to be evaluated.

AJL:T  
Research Test Lab