

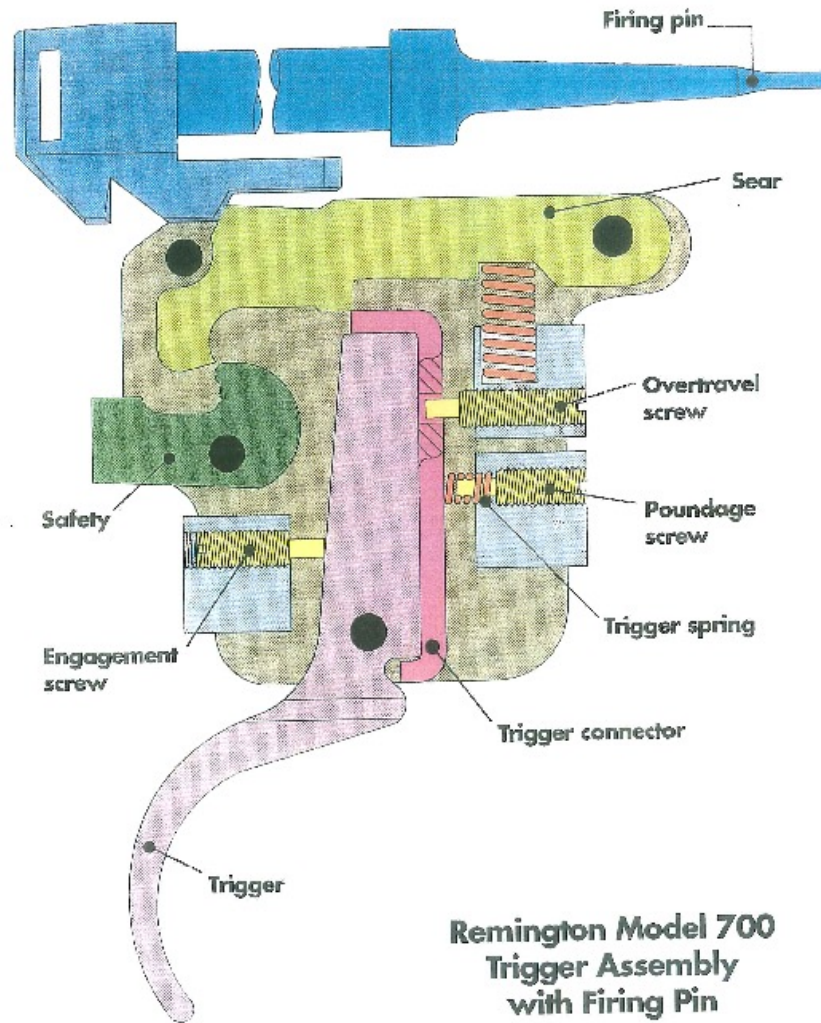
FOOL PROOF SAFETY

The Walker Fire Control of the Model 700 has a unique design feature that is different from any other fire control in the world. It has a “trigger connector” which is pressed into contact with the trigger body solely through the force of a trigger spring.

A component called the “sear” holds back the firing pin and prevents the rifle from firing, theoretically, until the trigger is pulled.

The sear is supported
by the trigger
connector until the
trigger is pulled.

Walker Fire Control Assembly Diagram



As early as 1943 the concept of the trigger connector was explored by Remington for a predecessor model to the 700, the Model 721. However, even as conceived, Remington realized that the connector would separate from the trigger.

Remington Produced Document Bates # R2500134-35

cc: D.F. Carpenter
W.O. Stauffer
M.H. Walker
I.R. Notebook

Ilion

June 24, 1943

TO : A.J. GREENE

FROM : H.W. YOUNG

SUBJECT : INVENTIONS REPORT 17-24
SUBJECT : FIRE CONTROL
INVENTOR : M.H. WALKER, 126 JOHN STREET, ILION, N.Y.

Description:

The accompanying drawing, LA-65, illustrates a fire control in which a connector is provided to eliminate trigger shock and reduce the trigger movement after sear release is initiated, and which is carried solely by the trigger.

In the present structure the trigger is stopped as soon as the connector starts to disengage and the connector is allowed to continue in its movement to complete the disengagement. (the "fired position" view in the drawing shows the position of the parts after firing in which the connector is slightly separated from the trigger at the top).

The drawings show the connector as having its lower

Remington learned in early 1947 just as the Walker Fire Control was being released to production that a “*very dangerous*” condition existed.

Daily Progress Report

DAILY PROGRESS REPORT

SUBJECT M/721 Pilot Line Inspection

Date 4/9/47

There is evidence from the functioning of the above mentioned guns that the Connector, Safety Cam and Sear are not within design limits. This situation can be very dangerous from a safety and functional point of view and the existing condition has caused the following listed malfunctions to occur in several guns that were inspected:

1. Firing Pin moves forward during the bolt locking cycle.
2. Possible to fire the gun by pushing the Safety to the "off" position.
3. Occasionally the firing pin moves forward during the bolt locking cycle.

From the inspection standpoint, situation #3 should be considered the most dangerous in that the malfunction might not occur during the relatively few cycles that the gun would be functioned during inspection.

W. E. Leek
Test Engineer

The Walker Fire Control was released for production in March of 1948. After three field complaints of rifles firing when the safety was released, a new design was proposed in August of 1948 to add a trigger block to force full engagement of the sear.

Elion, New York, August 3, 1948

TO: John H. Lewis, Jr.

FROM: H. W. Young

SUBJECT: INVENTIONS REPORT -- IT-74
MODEL 721 - SAFETY

Inventor: (Ball Connector Block)
H. W. Young

DESCRIPTION:

The accompanying drawing, L-615, shows a Safety in which a floating ball is employed to block the Model 721 Connector in Sear engagement.

In detail, the Sear, similar to the former one-piece M/721 Sear, has a downwardly projecting lobe (1) with a rearwardly facing ground surface

John H. Lewis, Jr.

- 2 -

August 3, 1948

SUBJECT: INVENTIONS REPORT -- IT-74 -- MODEL 721 SAFETY

The present proposal provides retention of a connector similar to the present M/721 structure and utilizes a means of blocking this member in safe position.

Inasmuch as all of the parts directly involved (Sear, Connector, and Ball) are hardened parts and as the surfaces involved can be finished by grinding, very close tolerances can be held and since the only two part tolerance combination includes the ball, which can be purchased with negligible tolerance, interchangeability should be expected with a total tolerance of about $\pm .002"$.

We would like a report as soon as possible covering the infringement aspects of this mechanism.

H. W. Young,
Design Unit,
Arms Technical Division

HWY:LJ

The field complaints prompted three new suggested designs to “*eliminate any theoretical possibility of the gun firing when the safety is moved to the ‘off’ position.*”

Ilion, New York
August 25, 1948

PROGRESS REPORT

MODEL 721-722 FIRE CONTROL AND SAFETY

INTRODUCTION

Three field complaints have been received which reported the M/721 Bolt Action Rifle firing when the Safety is moved to the "off" position. Two guns representing two of the complaints were tested at Ilion without it being possible to reproduce the defect.

It is, however, theoretically possible under very remote conditions to experience this problem and the Ilion Design Meeting of July 15, 1948, recommended that an immediate investigation be made to develop an alternate design which would eliminate the hazard.

OBJECTIVE

It has been the objective of this study to prepare alternate designs of the Model 721-722 fire control and safety to eliminate any 'theoretical' possibility of the gun firing when the safety is moved to the "off" position and to maintain in as far as practical the present desirable features of the trigger.

The only apparent method of assuring a "fool-proof" design, in view of Freedom Patent No. 2,191,521 assigned to the Western Cartridge Company, has been the consideration of Safeties which positively block the trigger.

SUMMARY AND CONCLUSIONS:

Three alternate designs have been derived from this study as follows:

✓ Type I is an entirely new type of safety with, we believe, patentable novelty.

	<u>Present Design</u>	<u>Proposed Type I</u>	<u>Proposed Type II</u>	<u>Proposed Type III</u>
Expenditures to Date	-----	(\$3,000 on all Proposed Design)		
Expenditures to Complete	-----	\$21,380.	\$ 7,800.	\$12,900
Standard Material	\$30.588/100	\$34.105/100	\$34.038/100	\$29.358/100
Standard Labor	\$25.268/100	\$27.262/100	\$29.238/100	\$25.565/100

RECOMMENDATIONS

In view of the lack of additional complaints covering the question of the Model 721 firing when moving the safe to the "off" position and the inability to duplicate the complaints received from the field, we recommend that action be considered as follows:

1. Consideration be given to maintaining the current M/721 trigger "as is".
2. If a change is to be made to eliminate any remote theoretical possibility of the gun firing when moving the safe to the "off" position, we consider type I which in our opinion is the best design. Its disadvantages lay in the high expenditure required to make the conversion.
3. Consideration of the Type III design for the lowest product cost with adequate safety.
4. Last, the consideration of the Type II design. A "hard safety" would always be prevalent in this version as well as high product cost. This design is presented primarily to give Sales an opportunity to maintain their advertizing feature of the safety blocking the firing pin.

"If a change is to be made to eliminate any remote theoretical possibility of the gun firing when moving the safe to the "off" position, we consider Type I which in our opinion is the best design. Its disadvantages lay in the high expenditure required to make the conversion."



D. S. Fcote
Design Unit
Arms Technical Division

DSP:HL
8/26/48

Instead, while noting, “*Our usual potential liability for the safety of our product is somewhat augmented*”, the original design was retained. “*Pending receipt of further complaints from the field.*”

RD-4
REMINGTON ARMS COMPANY, INC.

Remington
CORP.

PETERS
CORP.

Mr. H. A. Brown

Mr. H. K. Paulkner

Bridgeport, Connecticut

August 31, 1948

TO: MR. S. M. ALVIS,
From: MR. A. J. Greene,
Subject: MODEL 721 SAFETY

The gun mentioned in your letter of August 27th was duly delivered to us by Mr. Pinckney, and is returned to him with his copy of this letter. We are unable to secure a malfunction of its safety, and deem its construction a substantial improvement over the model which we had previously examined.

Our usual potential liability for the safety of our product is somewhat augmented by our knowledge that some Model 721 safeties have malfunctioned. However, our liability does not seem to be out of proportion to the advantage of retaining the present sear and safety construction, pending receipt of further complaints from the field.

We note that in the production gun which you supplied the three adjustment screws in the trigger assembly are not staked, as they were in the earlier models. We believe it important that these screws, particularly the one which determines the amount of engagement of connector and sear, be so sealed as to afford a positive indication when our factory adjustment has been altered.

AJG/m

→
A. J. GREENE,
Patent Attorney.

out
8
Worley
Notified
H.A.N. - 9/1/48
A. J. G. M.
AJP
CONFIDENTIAL-SUBJECT TO PROTECTIVE ORDER
KINZER V. REMINGTON

R2501440

Remington knew the risks of a “Sear lift safety.”
“Foreign material” in the fire control, or “a bad trigger fit,” can cause the trigger to “stick.”

If this occurs, *“When the Safety is released, there is nothing to support the Sear, so the rifle fires off safe.”*

Remington Produced Document Bates # AL0023606

A

Fire Control Design Considerations Bolt Action Rifles

- 2 -

January 19, 1977

Safety - Contd.

Lift Sear Safety

This Safety lifts the Sear clear of the Trigger and blocks it so that, when the Trigger is pulled, it can not release the Sear. This Safety is used on rifles where the Trigger movement is too small to effectively block. It is especially useful on target rifles.

Problems can occur with this Safety if the Trigger binds. Foreign material in the Fire Control, or a bad trigger fit, can cause the Trigger to stick in the "pulled" position. When the Safety is released, there is nothing to support the Sear, so the rifle goes off safe.

This Safety requires more throw than a block trigger safety. This is because it has to do considerable work to lift the Sear against the mainspring force.

A Lift Sear Safety must have constant force camming between the Safety and

In the 1970's, Remington experimented with new designs that were designed to eliminate the dangerous condition.

One project explored the use of a “trigger block” safety as an alternative to the “sear lift” safety.

Remington Produced Document Bates # AL0014774

Bridgeport, Connecticut
November 16, 1978

C.B. WORKMAN
M.H. WALKER
J.P. LINDE
H.D. ALBAUGH W.H. FORSON

BOLT ACTION FIRE CONTROL - DESIGN REVIEW 11-14-78

- A gauge is being designed to check sear lift. The gauge is expected to be positive and simple enough to be used in the field. ~~Completion of a prototype gauge is scheduled for mid-December.~~
- The following design requirements for a new fire control for bolt action rifles were tentatively established -
 1. Eliminate the "trick" condition. At this point the best solution appears to be adding a trigger block to the safety cam mechanism. This would prevent the trigger from moving in the "safe" position - eliminating the "fail to reset" possibility.
 2. ~~The new fire control should be retrofittable.~~
 3. A bolt lock arrangement should be provided

The Trigger Block Safety
is the “ultimate safety.”

Remington Produced Document Bates # AL0023605

A

January 19, 1977

FIRE CONTROL DESIGN CONSIDERATIONS
- BOLT ACTION RIFLES -

Tolerances

Fire Controls have many interacting parts. And their function requires minimum part movement. Because of this, tolerance buildup is the key problem in designing Fire Controls for mass production. This tolerance buildup problem can be solved in a variety of ways:

- Adjust tolerance buildup out by screw adjustment, bending, swaging, or filing.
- Have several parts sizes in inventory for a selective fit.
- Eliminate the tolerance buildup by performing a manufacturing operation during final assembly. For instance, a critical hole could be drilled during assembly using the assembly up to that point as a fixture.
- Design parts which can move a lot, to move even more to take up tolerance buildups.
- Parts whose function is not critical to safety can be tolerated statistically.

Safeties

Block Trigger Safety

This Safety blocks the movement of the Trigger. The Trigger, in turn, blocks the movement of the Sear which blocks the Firing Pin. When the Safety is disengaged the Trigger may be pulled to fire the rifle. In my opinion this is the ultimate Safety because it blocks all of the functions required to fire the rifle.

This type of Safety will not work on a target type Trigger because the Sear engagement might be adjusted too fine for the tolerances in the Safety. Then the rifle could be shot with the Safety on.

1 of 2
PLAINTIFF'S
EXHIBIT
3109

AL 0023605

H

One design change
explored the
elimination of the
Trigger Connector.

Remington Produced Document Bates # AL0023392

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington

PETERS

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

Ilion, New York

December 1, 1975

TO:

J. P. LINDE

FROM:

D. E. BILLIS

SUBJECT:

PROGRESS REPORT

ELECTRON BEAM WELDED EJECTORS:

The latest design ejectors have been machined, heat treated, blasted and put in test for endurance

M/700 TRIGGER (One Piece)

For test purpose only, a trigger was made by screwing a connector to a M/700 trigger making in effect, a solid one piece trigger. Preliminary tests indicate a one piece trigger may be acceptable.

A new design was drawn up and put in the shop of a trigger which has a back angle on the break away portion of the trigger, sear surface. A formed bar

“Potential Improvements”
to bolt action rifles were
also considered in the
1980’s.

Remington again considered
a “blocked trigger.”

Remington Produced Document Bates # AL0028064-65

RD-418

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington

PETERS

XC: J. P. Glas
J. W. Brooks
J. S. Martin
A. A. Hugick
F. E. Martin
S. A. Fanelli

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY" _____

Ilion, New York
March 2, 1981

TO: C. B. WORKMAN

FROM: T. L. CAPELETTI *TC*

SUBJECT: POTENTIAL IMPROVEMENTS TO BOLT ACTION RIFLES

- Modify the follower to reduce feeding malfunction rates
- 5.) Redesign the fire control
 - Implement new design with blocked trigger and sear
 - "Skeletonize" the design to make components more visible and easier to keep clean
- 6.) Left handed rifles
 - Expand line to include smaller calibers (eg. 243)

Remington again considered removing the “trigger connector.”

Remington Produced Document Bates # REM0045171

M

CONFIDENTIAL

FIREARMS

NEW PRODUCT DEVELOPMENT

U

R

R

A

Bolt Action Rifles

Five Model 700 fire controls with blocked sears and blocked triggers are in the Test Lab for evaluation. We are assembling sample fire controls employing a new trigger design which does not require a connector to eliminate a part, insure a more positive lift, and maintain proper clearance.

The second Model 7 bolt action gun is complete with long action.

Research Department

-1-

January 1982

PLAINTIFF'S
EXHIBIT

NTB-165

REM 0045171.1

RR 0000101.1



NTBOOK165

MUR 0009384

Even the original designer of the Walker Fire Control, Mike Walker, weighed in on the future of his design,
“Please don’t bring out a new bolt action without a fool proof safety.”

A

REMINGTON ARMS CO.
RECEIVED

MAR 16 1982

225 E. Edgewood Dr. Apt. 98
Lakeland, Florida 33803
Mar 12, 1982

Mr. Clark Workman FIREARMS RESEARCH DIVISION
Remington Arms Co.
Illion, N. Y.

Dear Clark:

Jim was here today and we went over the bolt actions from A to 2.

These are some of the things I propose:

1. Please don't bring out a new bolt action, without a fool proof safety which is capable of locking the bolt. Make it at least as good as the present M/70, better if possible.
2. Suggest you push for a complete line of bolt action rifles that cover the price gamut from lowest to highest. I feel the Carbine should be as simple and plain as you can make a price to match.

9. We obviously have some production or design problems with M/700 magazine feed. We need to get busy on this. Magazines too narrow or receiver openings too wide can cause the problem you are experiencing.

10. Jim mentioned that some one is pushing for a Mauser type extractor. Do they understand that the rifle will come apart same as the present competition with excessive pressure if we go to any extractor which breaks the bolt shroud?

11. Has anyone tried a floating wedge in the front of the present 700 trigger as an additional element to the safety? It would be operated and governed in position by a relatively long slot in the present safety arm on the exterior of the housing. The wedging action would hold it in position until the very last movement of the safety to the "off" position. It might be pushed to the "on" position by a light spring or by the final movement of the safety arm to the "on" position.

If I think of anything more I will call.

Sincerely,

M. H. Walker

Mr. Walker wanted a “trigger–
blocking safety.” The same type
he had proposed in response to
field complaints in 1948.

Deposition of Merle Walker, 1/26/11

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF OKLAHOMA

JANTZ H. KINZER and)
JOHN W. CHERRY, Individually)
and as class representatives,)

Plaintiffs,)

vs.)

No. 05-0719-CV-W-JTM

REMINGTON ARMS COMPANY, INC.,)
and SPORTING GOODS)
PROPERTIES, INC.,)

Defendants.)

VOLUME I

THE VIDEOTAPED DEPOSITION OF MERLE H. WALKER,
produced, sworn and examined on behalf of the
Plaintiffs, pursuant to Notice to Take Depositions,
between the hours of eight o'clock in the forenoon
and six o'clock in the afternoon of Wednesday,
January 26, 2011, at the law offices of Van Winkle,
Buck, Wall, Starnes & Davis, P.A., 422 South Main
Street, Hendersonville, North Carolina, before me,

STACY L. DECKER,
C.C.R. No. 858,

of

JOHN M. BOWEN & ASSOCIATES,
Shorthand Reporters,

a Certified Shorthand Reporter, in a certain cause
now pending in the United States District Court,
Western District of Oklahoma, wherein JANTZ H.
KINZER, et al., are Plaintiffs and REMINGTON ARMS
COMPANY, INC., et al., are Defendants.

1 Q. This was a letter that you wrote to Mr. Clark
2 Workman at Remington?

3 A. Yes.

4 Q. And what was your understanding at that time of
5 Mr. Workman's position or title with Remington?

6 A. He was over R&D.

7 Q. And you indicate in the first line that, quote,
8 "Jim was here today."

9 Who would Jim be? Is that Mr. Hutton?

10 A. Must be.

11 Q. In the first numbered paragraph, you state,
12 quote, "Please don't bring out a new bolt action
13 without a foolproof safety which is capable of
14 locking the bolt. Make it at least as good as
15 the present Model 70, better if possible."

16 Did I read that correctly?

17 A. Yes.

18 Q. And when you said without a foolproof safety,
19 what did you mean, Mr. Walker?

20 A. I meant a trigger-blocking safety.

21 Q. The same type of trigger-blocking safety that
22 you had designed and worked on in 1948?

23 A. Yes. But when you say designed and worked on,
24 the ideas were there, but the parts were not.

25 Q. But the -- but conceptually you're recommending

Any new fire control required
“preset engagement” to insure
that the trigger consistently
reset to support the sear and
prevent FSR's.

Technical improvements also included the trigger blocking safety recommended by Mr. Walker.

These improvements reached
“the final design stage.”

Remington Produced Document

FIREARMS BUSINESS TEAM MEETING
MAY 31, 1985

FILE: BOLT ACTION RIFLE
(REPLACEMENT FOR THE MODEL 700)
J. W. BOWER'S LETTER TO W. H. COLEMAN, II

9. NEW BOLT ACTION RIFLE

THIS RIFLE HAS BEEN DESIGNED AS A REPLACEMENT FOR
THE MODEL 700. TECHNICAL IMPROVEMENTS INCLUDE:

O AN IMPROVED FIRE CONTROL CONTAINING:

- PRESET ENGAGEMENT AND OVERTRAVEL
- CUSTOMER ADJUSTABLE TRIGGER PULL TO A SAFE
LOWER LIMIT
- STEEL TRIGGER AND SEAR

O A SAFETY THAT BLOCKS BOTH THE TRIGGER AND SEAR

- O A BOLT LOCK WHICH ALLOWS THE CUSTOMER TO
UNLOAD THE GUN WITH THE SAFETY ON

MARKETING HAS COMPLETED INITIAL FOCUS PANELS TO
GUIDE THE DESIGN EVOLUTION.

REVISIONS TO THE FIRE CONTROL ARE IN THE FINAL
DESIGN STAGE. ADDITIONAL PROTOTYPES WILL BE READY

FOR DEVELOPMENT TESTING THIS SUMMER.

Unequivocally, these efforts
were strictly designed to
*“Eliminate the ‘Fire on Safety
Release’ Malfunction.”*

Remington Produced Document Bates # ET56281-82

Design Criteria:

1. Remove Adjustments
2. Preset Engagement
3. Preset Overtravel
4. Preset Trigger Pull
5. Retrofiability
6. Eliminate "Fire on Safety Release" malfunction
7. Balanced Trigger
8. Tamper Proof / Evidence of tampering
9. Force Engagement in "safe" position
10. 3lb. Trigger Pull
11. Manufacturable

Problems:

1. Trigger block plunger binds in trigger
2. Trigger shoe out of position
3. Hard safe "on" forces
4. Safe does not force trigger engagement
5. Safety can be removed in the field with no evidence.

Solutions:

1. Alter assembly procedure to locate off trigger block plunger hole with a max diameter + .0005" pin.
2. Insertion of trigger model into the fire control layout found trigger engagement surface out of position by .020" in the horizontal direction and .005" out of position in the vertical position.
3. New assembly procedure eliminates sear being forced too far down during assembly thereby eliminating interlocking radii on sear and safety, thus eliminating hard safe "on" forces.
4. Added a safety strap to prevent the safety arm from flexing out thus riding over the trigger block plunger instead of forcing the plunger in the trigger hole.
5. Designing a new safety retaining clip which is unable to remove without being destroyed.

Current Status:

1. Parametric Model of the following components:
 - a. Front Spacer
 - b. Rear Spacer

ET56281

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to Protective Order
Williams v. Remington

- c. Left & Right Side Plates
- d. Safety
- e. Trigger Housing Bushings
- f. Sear
- g. Trigger
2. Inserted new trigger in fire control layout
 - a. Trigger had no engagement
 - b. Trigger engagement surface is .005" too high
3. Min/Max analysis on fire control assembly to determine feasibility of eliminating drilling operation at assembly.
4. Redesign Safety Lever Retaining Pin to eliminate disassembly of fire control in the field.
5. Designed an assembly fixture to aid in mass production.
6. Measured four fire control assemblies.

Recommendations:

1. Make both side plates from the same die thus eliminating tolerance variances between side plates.
2. Tighten surface finish specification on trigger block plunger
3. Demagnetize trigger block plunger and trigger
- 4.

ET56282

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In the 1990's, Remington
once again considered fixing
the unsafe condition.

Remington entered into the
“Fire Control Business
Contract” in 1995.

Remington Produced Document Bates # ET60421

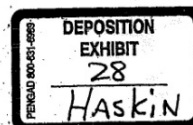
**Fire Control
Business Contract**
Rev 0.1

Program Manager
Leo F. Schneider

January 27, 1995

ET60421

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The new fire control was designed to “force engagement between the sear and trigger.”

The “Business Objective” of the contract was “*to add design characteristics that enhance the safety attributes of our firearms.*”

Remington Produced Document Bates # ET60424

1. PRODUCT CHARTER

The new fire control is a form and fit replacement to the existing fire controls on all Model 700 and Model 7 Centerfire Rifles. The function of the fire control has been modified such that all capability for adjustment after the fire control leaves the factory will be removed. In addition, the new fire control is designed to force engagement between the sear and trigger, and not allow placement of the fire control in "safe" unless the trigger/sear are fully engaged.

1.1. Overview

The fire control is designed such that it's replacement, in new production or as a retrofit to factory serviced guns, will not be obvious to the customer. The goal is to provide a fire control the "feels" the same to our customers yet provides additional safeguards against inadvertent or negligent discharges. The only difference that the customer may observe is that the fire control may not go on safe if the trigger and the sear are not engaged, and that he may not move the trigger while the safety is in the "safe" position. Instructions will be provided with the fire control that will allow the customer to understand these new functions.

1.2. Target Market Segment

All Remington Model 700 and Model 7 customers.

1.3. Distribution Channels

All new production guns and any guns returned for factory service.

1.4. Business Objective

The purpose of the redesign of the fire control is to reduce the number of parts required, lower our cost, and to add design characteristics that enhance the safety attributes of our firearms.

1.5. Competitive Rationale

If all design characteristics of this fire control are achieved, Remington will be the only major manufacture of firearms to offer this type of safety and functional features. This, however, is not considered a highly marketable feature and therefore will not be included in marketing campaigns (is the above true?).

ET60424

The “target cost” per rifle was only “\$6.00 to \$8.00” per rifle.

This is where “*the rubber meets the road.*”

Unfortunately, the rubber was going to meet the road only if Remington could make a profit on a safer design.

3. FINANCIAL ANALYSIS

In this section the rubber meets the road. Is this project worth doing? What are the minimum forecasts to insure profitability and does our pricing structure support these expected profits.

3.1. Target Forecast

It is estimated that, based on current sales forecast, that approximately 240,000 fire controls per year will be required.

3.2. Target Costs / Pricing

The target cost to Remington is in the \$6.00 to \$8.00 range in the quantities above.

3.3. Profit / Loss

Not applicable.

Efforts were undertaken to fix the Fire on Safe Release— to force engagement by using a “one piece trigger (no connector)”

Remington Produced Document Bates # ET56334 and ET60798

To: Danny Diaz

From: Leo Schneider

Subj: "Rensi 1"

1. Below is the requirements for "Rensi 1", as I understand them. I have provided these to Mike and Dave. If we need to make changes or my understanding is not based in fact....please let me know.

Function	Testable
FSR fix	Yes
Forced Engagement(.020 + or - .005)?	Yes
One piece trigger (no connector)	Yes

Suitability	
Non-adjustable	Yes
Safety	
Drop test	Yes
Logistics	
Retrofitable	
Common parts (use as many as possible)	
Human factors	
Trigger feel - same	
Operation - same but safety will not engage without trigger/sear engagement	
Assembly - Procedures same as current trigger	
Manufacturable	
Time frame - changes can be made in production within 8 weeks of baselining design	

Very Respectfully,

Copy to:
Mike Keeney
Dave Schluckebier

ET56334

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to Protective Order
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Fire Control Requirements

- ☐ Solve FSR
- ☐ Forced engagement
- ☐ Retrofitability
- ☐ Tamper evident design
- ☐ Trigger pull 3.0 - 5.0 lbs.
- ☐ Must pass functional tests and SAAMI drop and jar off tests
- ☐ Manufacturability
- ☐ Feel and performance commensurate with current M700 trigger

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Williams v. Remington

ET60798

Remington Arms Confidential

3/28/95

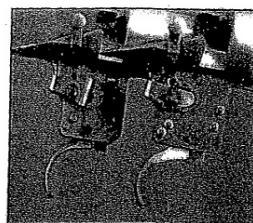
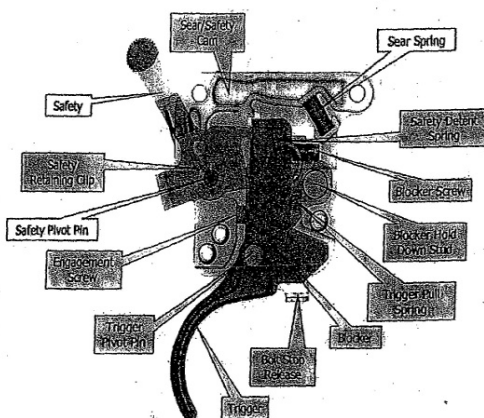
3

In 2006, Mike Walker's 1948 recommendations for a safer trigger were finally adopted by Remington.

The “Safety Pivoted Link” was introduced. It blocks movement “of both the trigger and the sear.”

Article From *Predator Xtreme* Magazine, February 2006

Breaking News



Right Side View



Left Side View

The Remington 700 Gets a New Trigger

After decades, new fire control graces the 700 line.

Jon R. Sundra

The Remington 700 has been around for 42 years without major changes, which is quite a testimony to the soundness of the original design. That's not to say there have been no changes, however. One was the elimination of a small rivet used to secure the extractor in early models; another was the addition of an anti-bind groove in the right locking lug.

Two other changes from the original design had to do with the fire control system. On earlier models, when the two-position side safety was engaged, the bolt was locked. That was changed to allow the action to cycle in the "Safe" mode, because you need a safety when chambering or extracting a live round. It never made sense to me to have to disengage the safety to do either. The other change consisted of going to a one-piece sear instead of the original two-piece unit.

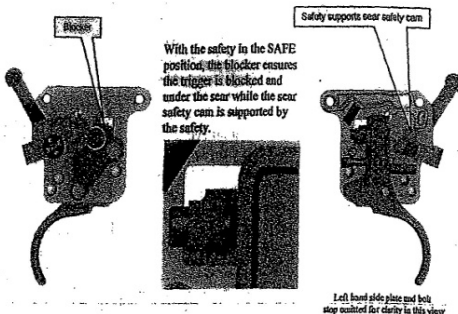
For 2006 the Remington 700, along with its sibling, the Model Seven, got an entirely new fire control system. Called SPL for "Safety Pivoted Link," the new trigger unit looks remarkably similar to

the original, but differs in one major element: the safety blocks movement of both the trigger and sear. All past 700's (and the predecessor Model 721/722 series dating back to 1948), have a safety that, when engaged, blocks movement of the sear, but

allows the trigger to move through its normal arc when pulled. With this type arrangement, if the trigger is pulled with the safety on, it must return to its original position to support the sear.

The problem with this design is that if for any reason the trigger does not

Safety in SAFE Position



return to its forward position, the gun can discharge when the safety is released. There are several scenarios under which this can happen, but primarily it occurs when there is friction against the trigger — like if the barreled action is canted in the stock slightly so the trigger is dragging against either side of the cutout in the top of the trigger guard bow. Another cause could be swelling of wood in that area of the stock's inletting surrounding the trigger. That can be caused by high humidity, soaking rain or wet snow. I have personally seen both these conditions occur on rifles with triggers similar to that of the Remington. I was also present when a colleague released the safety on an older Tikka and the gun fired. That incident was caused by a Styrofoam bead from the original factory box that had somehow gotten into the trigger unit and wedged itself in such a location that the trigger could not return to its forward position.

The new SPL trigger blocks both trigger and sear movement, while still allowing the action to be cycled when engaged. Remington makes several claims for the new trigger, among them:

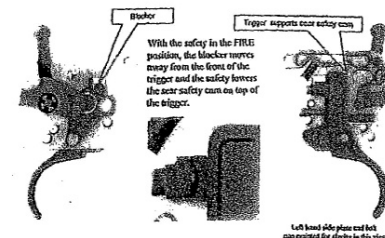
- Improved out-of-the-box feel,
- better corrosion resistance,
- more highly-polished parts to provide a crisper pull, and
- lower pull settings from the factory.

Though trigger tampering still voids the warranty, the trigger pull can be adjusted down to 2 lbs. If done by an authorized Remington Repair Center.

I had the opportunity to test the very first example of this new trigger to leave the factory on a recent prairie dog shoot in South Dakota last May (see this issue of PX), but I couldn't say anything about it until I got the official go-ahead from Remington to release the news. Now that I've got it, I can tell you it's a decided improvement over the current trigger — which is saying something, because the 700 has always had one of the better factory triggers. The trigger on my test gun — a Model 700V-SSF II in .204 Ruger — broke at an even 3 lbs. and was smooth and crisp with no discernible creep whatsoever. What more can you ask from a trigger? It was a joy to use. Further testing at home reinforced the initial field impressions: You're gonna' like this new trigger!

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By the time the Safety Pivoted Link was introduced, over 5 million Remington rifles manufactured with the Walker Fire Control had been sold. The Model 700 was first introduced in 1962, 14 years *after* Remington first recognized the potential danger of the Walker Fire Control.