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FIREARMS - TRAPS

MINUTE #6 - 1975

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COPY NO. B

OPERATIONS COMMITTEE

ILION DIVISION

MARCH 21, 1975

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Committee

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L. J. SCOTT
R. B. SPERLING

R. L. HALL
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J. P. LINDE
J. S. MARTIN

The meeting convened at 9 a.m. at Ilion.

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McAndrews
Head of Record 1975-1978

IREM 0027643 1

C

R

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Product deficiencies known or suspected in 1975 - Exhibit 15.

REM 0028349
REM 0027644

MINUTE #6-1975

-7-

MARCH 21, 1975

BUSINESS MEETING - contd.

RESEARCH PERFORMANCE

In response to product deficiencies reported by Marketing, R & D made the following reply:

- Model 700 Fire position Safety - development of this feature is in progress.
- Model 788 Bolt Handle failures - a revised design for Bolt Handle attachment is in test.

The R & D report on progress versus schedule follows:

PROGRAM

Release Design
Schedule

IREM 0028228 1

IREM 0027645 1

BUSINESS MEETING - contd.

RESEARCH PERFORMANCE - contd.

Program

Release Design
Schedule

Model 788 Improvements -
Design will be released in the second
half of 1975.

April, 1975

Model 700 Improvements -
The three position Safety is being
reviewed. Recommendations will be
made in the second half of 1975.

January, 1975

[REM 0028222]

[REM 0027646]

C

REMINGTON PRODUCT DEFICIENCIES KNOWN OR SUSPECTED

R

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IREM 0028350 1

IREM 0027644 1

G

EXHIBIT 15

E. M/700 SAFETY

- EASE OF OPERATION AND SAFE GUN HANDLING DEMAND A DESIGN THAT ENABLES THE SHOOTER TO OPERATE THE ACTION WITH THE SAFETY "ON".

REM 0028223

REM 0027665

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FIREARMS - TRAPS

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OPERATIONS COMMITTEE

ILLION DIVISION

SEPTEMBER 19, 1975

PRESENT:

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R. L. HALL
C. B. WORKMAN
*W. E. LEEK
J. P. LINDE
J. S. MARTIN
*J. L. TEAL
*H. L. HANESTER

* Part time

The meeting convened at 11:50 a.m. at Illion.

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ITEM 0027622

QUALITY REVIEW AT ILION - contd.COMPETITIVE POSITION - contd.

J. P. Kinde reported the safety mechanisms on the bolt action rifles have been reviewed for performance. The safe operation, function and endurance over extended testing and environmental changes have been verified. The Models 600, 700, 788 and 580's were shot 33,000 times and dry cycled (Safe on - Safe off, and cock and fire) 1,655,500 dry cycles to determine the strength, wear factors and ease of operation of the safety mechanisms.

A number of model drawing changes were made to insure better control of the parts. A gage to measure the Sear lift of the assembly before it is installed on the gun has been completed and will be instituted into production as an additional safety check.

Designs are being analyzed to allow the customer to unload the Model 700 with the Safe in the ON position as an additional safety feature.

The meeting adjourned at 2:30 p.m. The next meeting will be October 23, 1975 at 8:30 a.m. at the Horizon Hotel, Oneida County Airport, N. Y.

JHS:I

Attached - Exhibits 1 thru 23

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FIREARMS - TRAPS

MINUTE #20 - 1973

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OPERATIONS COMMITTEE ILION DIVISION

NOVEMBER 26, 1973

PRESENT:

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E. B. BEATTIE
L. FOX
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Others

E. HOOTON, JR.
J. R. MALLOY
F. E. MORGAN
L. J. SCOTT

R. L. HALL
C. B. WORKMAN
H. K. BOYLE*
W. E. LEEK
J. S. MARTIN

* Acting Secretary

The meeting convened at 11:00 a.m. at the Horizon Hotel, Oneida County Airport, N.Y.

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18EM 0021630 1

PRODUCT DEFICIENCIES (KNOWN OR SUSPECTED) 1975

Remington 3200 -

Model 1100 -

Model 1100 and 670

Model 742 -

Model 700 - three position safety would be desirable.

Model 788 - bolt handle breakage.

| REM 0028214 |

| REM 0027621 |

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FIREARMS - TRAPS

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OPERATIONS COMMITTEE ILION DIVISION

JANUARY 23, 1976

PRESENT:

Committee

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E. F. BARRETT
E. B. BEATTIE
L. FOX
J. H. SWEENEY, SECRETARY

Others

F. E. MORGAN
L. J. SCOTT
R. L. HALL
C. B. WORKMAN
W. E. LEEK

H. K. BOYLE
J. S. MARTIN
J. P. LINDE
*H. L. HAMEISTER
*J. L. TEAL

*Departed at 11:06 a.m.

The meeting convened at 10:20 at the Horizon Hotel, Oneida County Airport, N. Y.

1 REM 0027612 1

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SEMI-ANNUAL FIREARMS - TRAPS DEVELOPMENT SCHEDULE1. Model 700 Improvement

R & D reported they are investigating safety mechanism performance in all bolt action firearms, both Remington and competition. From this review, a design proposal is being developed to modify the safety mechanism in the Model 700 and Mohawk 600 rifles. The most important alteration would be a design change to allow the shooter to unload the rifle with the Safety in the ON position.

2. Model 700, 308 Caliber Varmint Special

Rifles will be ready for R & D testing in January.

3. Model 700, 8mm Rem. Mag.

R & D reported initial prototype rifles and pressure Barrels should be completed and ready for testing in February.

4. Model 700, 7mm-06 (280) Caliber Silhouette Rifle

R & D reported that of all the large bore center fire cartridges, the 280 is ballistically the most efficient. Therefore, it becomes an ideal caliber and cartridge for metallic silhouette shooting and has the capability of being a winner. Ballistically the 280 Rem. will provide superior performance to the 308 Win. and possesses 19% more kinetic energy at 500 meters with 30% less wind-drift than the 308. Also the 280 will provide an additional advantage to the recoil sensitive shooter, using lighter bullet weights. This recoil reduction is obtained without sacrifice of ballistic performance as compared to the 308.

These characteristics suggest the possibility of changing this cartridge designation from 280 to 7mm-06 to help ammunition obtain a proper "play" for this fine product.

It was concluded that Marketing (Domestic and Foreign) and R & D should consider together all aspects, including SAAMI, of this proposed designation change.

The rifle proposed for the silhouette shooting would have a Varmint Special Barrel.

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FIREARMS - TRAPS

MINUTE #6 - 1976

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OPERATIONS COMMITTEE ILION DIVISION

MARCH 18, 1976

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E. B. BEATTIE
L. FOX
J. H. SWEENEY, SECRETARY

Others

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F. E. MORGAN
H. D. ALBAUGH
R. L. HALL
W. E. LEEK
J. S. MARTIN
H. K. BOYLE
*H. L. HAMEISTER
*J. L. TEAL

*Departed at 2:00 p.m.

The meeting convened at 1:45 p.m. at the Horizon Hotel, Oneida County Airport, N. Y.

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18EM 6027644-1

COMPETITIVE EVALUATION PROGRAM FOR 1976:

- Bolt Action Firearms - A competitive test has been started to analyze the best "safety mechanism" characteristics on all bolt action rifles. Such things as safe on-safe loads, position of Safety on rifle, Bolt lock and three position Safeties are being analyzed.
- Autoloading Shotguns and Center Fire Rifles - Exhibit 21

The April meeting was rescheduled from April 22 to Thursday, April 8, 1976 at 10:00 a.m. at Bridgeport.

The meeting adjourned at 3:30 p.m.

JHS:I

Exhibits 1 - 21

IREM 0028213

IREM 0027615

PRODUCT DEFICIENCIES KNOWN OR SUSPECTED IN 1976

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R

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ITEM 0028348

ITEM 0027616

MODEL 700 SAFETY LEVER

EASE OF OPERATION AND INTERESTS OF SAFE GUN HANDLING
DEMAND A DESIGN THAT ENABLES A SHOOTER TO OPERATE
THE ACTION WITH THE SAFETY "ON".

R

A

I

REM 0027817 1

EXHIBIT 12-2

G

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FIREARMS - TRAPS

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OPERATIONS COMMITTEE ILION DIVISION

November 18, 1976

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N. S. OLENIK
G. W. HOWELL
T. J. SHARPE

R. L. HALL
J. R. AYERS
H. K. BOYLE
W. E. LEEK
J. P. LINDE
J. S. MARTIN

The meeting convened at 10:05 a.m. at Bridgeport.

REM 0027603-1

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BUSINESS MEETING - contd.PRODUCTION PERFORMANCE - contd.Harper Buff Vent Rib Barrels

R A

RESEARCH PERFORMANCE

R & D reported status of the Semi-Annual Development Schedule (July, 1976). The item numbers below are as listed on the Schedule.

1. Model 700 Improvements

Five Model 700 rifles have been made with a classic style Stock for Research and Marketing inspection. From this analysis, a list of design parameters is being determined for a classic Remington Stock. This program is being undertaken to be able to offer a classic styled rifle to compete with the Ruger 77.

The design of the Trigger Mechanism is being analyzed. This analysis should lead to possible design options which will be pursued.

IREM 0028210

IREM 002760

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FIREARMS - TRAPS

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APRIL 21, 1977

PRESENT:

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J. S. MARTIN
J. P. LINDE

The meeting convened at 9:15 a.m. at the Horizon Hotel, Oneida County Airport, N. Y.

IAEM 0027598/1

NEW MECHANICAL TRAP - contd.SPECIAL REPORTSMOHAWK 600 AND MODEL 700 FIRE CONTROL REVIEWMOHAWK 600 RIFLE

R & D reported that drawings have been transmitted to the plant to alter the Mohawk 600 Fire Control. The Fire Control Housing presently used on the M/700 has been modified so that it will fit the Mohawk 600. This change will yield a common Fire Control Housing for the Mohawk 600 and M/700 rifle. It will reduce cost, as the factory cost of the M/700 Fire Control Housing is less than the factory cost of the Mohawk 600 Fire Control Housing. This change should also improve the detent action of the Mohawk 600 Fire Control. The side plate on the M/700 Housing is heat treated. This is the surface the hardened steel detent ball is spring loaded against to obtain the two Safety positions.

MOHAWK 600 AND MODEL 700 RIFLES FOR EXPORT TO AUSTRALIA

R & D reported that one thousand Mohawk 600 rifles were shipped to Australia and stopped by the customs officials as being unacceptable for importation. This action was taken because the customs officials claimed the trigger adjusting screws should have a mechanical locking means.

It has been our experience with the Mohawk 600, M/721, M/722 and M/700 rifles that the trigger adjusting screws stay in adjustment. The screws on the Mohawk 600, M/722, 721 were staked and sealed.

[REM 0028207]

[REM 0027599]

MOHAWK 600 AND MODEL 700 RIFLES FOR EXPORT TO AUSTRALIA - contd.

with Du Pont Duco cement. The M/700 trigger engagement screw is Loctite'd and sealed with Du Pont Duco cement. All of these trigger adjustment screws will stay in adjustment if they are not tampered with by the customer. The Owner's Manual instructs the customer not to adjust the trigger engagement on the Mohawk 600 and Model 700 rifles.

All Mohawk 600 rifles and Model 700 rifles to be shipped to Australia will be assembled with lock screws in the trigger assembly. These modifications are being made so the rifles will pass their customs requirements and have nothing to do with the safety, function, or performance of the rifles.

FUTURE PROGRAM

R & D will do a complete design analysis on all the bolt action rifles and present a proposal to the Operations Committee. The areas of investigation will include:

1. Trigger Assembly adjustability
2. Increase commonality of parts in bolt action line
3. Allow M/700 to be unloaded with Safety in the "on safe" position
4. Improve the trigger pull characteristics
5. Reduce the cost of the Trigger Assembly

ITALIAN CHECKERING MACHINE

IREM 0028208-1

IREM 0027400-1

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OPERATIONS COMMITTEE ILION DIVISION

SEPTEMBER 20, 1977

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J. R. AYERS
R. J. CHESEBROUGH

The meeting convened at 11:45 a.m. at Ilion.

1 REM 0027589 1

RESEARCH & DEVELOPMENT PRESENTATION

An active design program is being pursued to improve the function and reliability of our Bolt Action Fire Controls.

Mohawk 600

The detent safety action on the Mohawk 600 rifle has been improved by modifying the Model 700 Trigger Housing to fit both rifles. Trial and pilot operations are being run.

Model 700

The Model 700 Fire Control Assembly is also being redesigned to make it more competitive with improved features. The proposed Fire Control Assembly will be adjustable for pounds pull within safe limits without disassembling the rifle. The rifle will be able to be unloaded with the safety in the "on safe" position. The Trigger pull characteristics will be improved especially on varmint and target models. Design prototypes are scheduled to be ready June, 1978.

M/788, M/580's, 541-S and 540-XR

These Fire Controls are being redesigned to improve their functional performance. On the present design the force required in the "on safe" position varies with the tolerances of the component parts. The force to position the safety from the "on safe" to "off safe" is on the low side.

A new design is being worked on which will give us a safety with uniform "on safe" forces and increased "off safe" forces. The design will also improve the attachment of the assembly to the rifle. This Fire Control Assembly would be adaptable to all the above listed rifles. Design prototypes are to be ready in December. Drawings will be transmitted in the first quarter of 1978.

Traps

There has been no action on the development of traps.

THE FOLLOWING INFORMATION IS FOR YOUR INFORMATION

ITEM	0026206
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ITEM	0027597
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OPERATIONS COMMITTEE ILION DIVISION

NOVEMBER 16, 1977

PRESENT:

COMMITTEE

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W. J. WEEKS
C. B. WORKMAN
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H. K. BOYLE
J. P. LINDE
J. S. MARTIN
D. HARRISON

The meeting convened at 11:10 a.m. at Ilion.

18EM 0027586

BUSINESS MEETING - contd.PRODUCTION PERFORMANCE - contd.RESEARCH PERFORMANCE

R & D reported status of the Semi-Annual Firearms Development Schedule (July, 1977). The item numbers below are as listed on the schedule.

1. Model 700 - Model 600 Fire Control Improvement

The development effort has been divided into two objectives. The first objective is developing a safety mechanism which is easy to understand, reliable, and will allow the shooter to unload the rifle in the "ON SAFE" position. Three prototype safety mechanisms have been completed and at least two more will be developed. The safety development will be completed in the first quarter of 1978. The various designs will be rated by Marketing to determine the one with the greatest consumer appeal.

The second objective is to improve and simplify the firing mechanism to give a Trigger with a better feel and which is externally adjustable within safe limits for pounds pull. Sample prototypes of the proposed new assembly with both improvements should be complete by April, 1978.

4. Model 600 Carbine

Six prototype carbines have been fabricated and are ready for Marketing and Production review. The rifles have design improvements and alterations to the Stock, Bolt Handle, Trigger Guard, Recoil Pad, Sights and Bolt Release.

IREM 0028203 1

IREM 0027587 1

(Ilion Research Division presentation contd.)

MAJOR PRODUCT UPGRADING

The major items in this category are:

- 1.
- 2.
- 3.
4. Bolt Action Fire Control Refinements

1

6

REM 0028198
REM 0027575

(Gillon Research Division presentation contd.)

MAJOR PRODUCT UPGRADING

Bolt Action Fire Control

Although Remington Bolt Action Rifles have fire controls that have been in the line for many years, and have proven themselves to be safe and reliable, it was felt that these designs should be looked at and analyzed in light of new processing technology and materials. With this in mind, the following items were investigated. (Slide A23)

1. Improved trigger pull
2. Cost Improvement
3. Standardization of Operation

Improved Trigger Pull

The present triggers at times have a variation in pounds pull that can be distracting to the shooter. It was felt that improvements could be made by improving surface finish of mating parts and by the use of better materials. Grinding of surfaces and plating of parts are being investigated. Some redesign for elimination of parts should also help this problem and will now be covered under cost improvements.

Cost Improvements

The first thing to be looked at under cost improvement was simplification of design so that as many parts as possible could be used by each of the various models.

I REM 00281971

I REM 00275971

(Ilion Research Division presentation contd.)

MAJOR PRODUCT UPGRADING

Cost Improvements - Contd. (Slide A24)

The design of the Model 700 and Model 600 Sear Safety Cam is being altered so that the same part will be used in both assemblies and models will be in test by the end of July.

(Slide A25)

Consolidation of design, if and where possible, is being looked at to help cut down on the number of parts. The Trigger of the Models 700 and 600 Fire Control can presently be adjusted for engagement with the Sear Safety Cam and for overtravel. It can also be adjusted for pounds pull when the Action is removed from the Stock. Designs have been altered and test models made to incorporate these features.

This slide shows the present Fire Control and a newly developed test model.

1. Fixed Sear and Trigger engagement

On the present Fire Control this is accomplished by adjustment of the Trigger Engagement Screw. On the proposed assembly, this is accomplished by a shoulder on the Sear that stops the Trigger and gives fixed engagement.

2. Fixed overtravel

On the present assembly, this is accomplished by adjustment of the Trigger Stop Screw. On the proposed model, a shoulder near the rear of the Sear Safety Cam will stop the Trigger overtravel.

Illion Research Division presentation contd.)

MAJOR PRODUCT UPGRADING

Cost Improvements - Contd.

3.

Trigger externally adjustable

The adjustment of the present assembly is done with the Trigger Adjusting Screw and Spring after removing the Action from the Stock. The proposed Screw and Spring for adjusting pounds pull will be placed in the Trigger so that adjustment can be made without removing the Action from the Stock.

Another feature being tested in this new model is removal of the present Connector.

The first designs will be ready for testing by the end of July. These designs eliminate one screw, a Connector and two drilled and tapped holes. If materials being investigated for these parts do not prove adequate, more expensive material may be required. This could negate some cost improvements; however, improved function in creep and trigger pull would help outweigh the cost disadvantage.

Standardization of Operation

Presently, all of our shotguns and some of our rifles can be unloaded with the Safe in the "ON" position. The rest of our rifles must be unloaded with the Safe in the "OFF" position. This is, and has been, a normal practice for years on rifles sold to the trade by all manufacturers. Research feels that Remington should offer the customer the option of being able to unload their Bolt Action Firearms with the Safe in the "ON" position, while at the same time if possible, retaining the Bolt Lock condition. Designs have been developed and some models built for testing. They have been given to Marketing for their evaluation in order to decide which type of design the customer would prefer.

(Ilion Research Division presentation contd.)

MAJOR PRODUCT UPGRADING

Standardization of Operation - Contd. (Slide A26)

One model is a three-position safety. The "OFF" safety position is forward. The middle position is "ON" safe and the bolt is locked. The rear position is "ON" safe but the bolt can be unlocked.

(Slide A27)

The other model is a bolt lock mounted on the bolt plug. It is used in conjunction with the present two-position safety. When the bolt is closed and cocked, the bolt handle is locked in the down position. With the safe in the "OFF" position, the trigger can be actuated to fire the rifle and this will automatically unlock the bolt so that it can be opened. To open the action with the safe "ON", the bolt lock lever on the bolt plug must be depressed, while at the same time, moving the bolt handle. This can be done easily with a natural motion of the hand and thumb.

Prototypes of these designs are now in test. It is anticipated that final designs will be ready for acceptance by December 1978.

Guns with each of these design features are on display boards and can be examined after the presentations.

XSG

Because the autoloading shotgun market is such an important segment of the total industry, there has been heavy competitive pressure over the past few years. This can readily be seen in the quality and durability of our competitors' latest offerings. While we have not yet lost market share, the effects of the Browning 2000, Winchester SX-1 and Smith and Wesson 1000 will be felt.

(Illion Research Division presentation contd.)

MAJOR PRODUCT UPGRADING

Four of the items that will be discussed today, fall in this category and account for 13% of our budget commitment. We expect this heavy commitment to continue for the next few years until some of our long range developments begin to demand a greater proportion of our total effort. (Slide A3)
The major items in this category are:

1.

2.

3.

4.

1	REM	0028344
1	REM	0027575

LIMITED DISTRIBUTION

OPERATIONS COMMITTEE

FIREARMS - TRAPS

MINUTE #15 - 1978

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OPERATIONS COMMITTEE
ILION DIVISION

SEPTEMBER 20, 1978

PRESENT:

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R. B. HURLEY
E. G. LARSON
J. P. LINDE
J. S. MARTIN
L. L. PRESNELL
L. J. SCOTT
R. S. SWARTZ
C. B. WORKMAN

The meeting convened at 11:45 A.M. at Ilion.

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IREM 0027545 1

MINUTE 415 - 1978

EXHIBIT 12-3

MODEL 700 - 600

Fire Control Assemblies for these models have been designed and fabricated that can be adjusted for pounds pull within safe limits, without having to remove the Action from the Stock. They also have a fixed trigger and sear engagement and a fixed trigger overtravel. Assemblies are now in the Test Lab.

Four Bolt Locks were designed that will allow the rifles to be unloaded with the Safety in the "ON SAFE" position. Two of the designs were ruled out by the Patent Department because of possible infringement. The other two designs are satisfactory from this standpoint and models are being fabricated for testing. They will be ready in October for the Test Lab and Marketing evaluation.

MODELS 788, 580S, 541S and 540XR

A new design of the Fire Control for these rifles has been completed which will give improved functional performance. It has uniform "ON" and "OFF" safety forces, improved manufacturing tolerances, and a stronger attachment of the housing to the Receiver. Assemblies are in the Test Lab.

A metal Magazine Box for the Model 541S rifles has been designed for improving customer acceptance. A prototype model will be ready in October.

IREM 0027568 1

BUSINESS MEETINGINVESTMENT CASTING REVIEW - Contd.RESEARCH PERFORMANCE

Research reported on the status of the items on the Semi-annual Firearms Development Schedule. The item numbers are as listed on the schedule.

1. Model 700 - Model 600 Fire Control Improvements

Sample Fire Controls are in test. A meeting is scheduled with Marketing on 11/14 to review the overall concept of Bolt Action Rifle Safeties.

3. Model 600 Carbine Styling

Samples will be supplied to Marketing for consumer surveys by December 1.

4. Model 788 Restyled

Two samples will be provided for Marketing review by December 1.

5. Model 788 New Calibers

Prints and updated parts lists have been sent to Production for the 30-30 Caliber.

The prototype of the 22 Hornet is scheduled to be completed by December 15.

IREM 00281941

IREM 00275401

CENTER FIRE RIFLES - Contd.MODEL 700-600 FIRE CONTROL IMPROVEMENTS

Research reported that several prototype Fire Controls have been made that allow the user to open the gun with the Safety on, and yet still include the Bolt lock feature. Two of these have been given to Marketing for use with focus panels. Work is in progress to develop a revised design of a retrofittable Fire Control that will block both the Hammer and Sear. Research is also conducting a survey of competitive guns, and are developing a position on exactly what Bolt Action Safeties should do. This report should be ready for review at the January meeting.

MODEL 600 RESTYLING

Research reported that five (5) models, with various cosmetic changes to the Action and Stock, have been delivered to Marketing for a focus panel.

MODEL 768 RESTYLED

Research reported that a new Stock has been fabricated and accepted by Marketing. The drawings will be finished by December 15, and prints will be furnished to Production.

Further discussions are to be held with Marketing on December 18, about cosmetic changes on the Action.

MODEL 788 NEW CALIBERS

Research reported that updated drawings for the 30-30 caliber have been completed and turned over to Production for cost estimating. A prototype of the 22 Hornet is being chambered and will be ready by December 15.

Production reported that engineering estimates have been completed for the 30-30 caliber showing various process alternatives. Economics are being prepared and should be available in January.

CENTER FIRE RIFLES - Contd.MODEL 700 CLASSIC - Contd.

Currently, this process is being used on all Classics and will be introduced, across the board, on all Model 700's by mid-February.

Samples of new and old style Classics were shown to demonstrate the appearance difference of the clean Barrel and the improved metal finish.

SEMI-ANNUAL FIREARMS - TRAP DEVELOPMENT SCHEDULE

The items on the Development Schedule were reviewed.

ITEM 1 - BOLT ACTION FIRE CONTROL IMPROVEMENTS

Research reported that a program has been instituted to design new Fire Controls for the entire Bolt Action line. Three Fire Controls have now been developed that allow the Safety Arm to be in the "ON" position for unloading the rifle. Two have Bolt Locks that are independent of the Safety Arm. These Fire Controls are on prototype rifles that are to be shown to a Marketing focus panel. Research also has another design on the drawing board that includes a Sear Block and Trigger Block. It should be possible to define model requirements by March.

ITEM 2 - BOLT ACTION CARBINE STYLING

Research reported that six (6) rifles with new carbine styling have been furnished to Marketing for a January focus panel. Two (2) of these models were reviewed with the Committee. These models included some of the following proposed features:

- . Restyled Stock
- . Walnut or Birch wood
- . Improved wood finish
- . Checkering
- . Sling Strap and Swivel
- . New Sights
- . New metal Trigger Guard
- . New Bolt Handle
- . Improved metal finish

CENTER FIRE RIFLES - contd.MODEL 7400 - 7600 - contd.BOLT ACTION FIRE CONTROL

Research reported that prototype rifles with several different Safeties and Bolt Actions have been shown to focus panels by Marketing. The results of the survey are being compiled. Model requirements will be defined in March.

BOLT ACTION CARBINE

Research reported that six different prototype rifles have been shown to focus panels. They have various design and cosmetic improvements to the Stocks and Actions. The results of the focus panels are being compiled. Model requirements will be defined by March.

Marketing reported that consumer research on the Bolt Action Carbine was conducted two weeks ago in three locations. Preliminary findings indicate a favorable response to the concept of a new, light weight Bolt Action Carbine capable of handling high velocity cartridges. There appears to be broad based appeal for a Bolt Action of this type. Acceptance was strongest among Bolt Action owners, but extended to lever action users as well.

Marketing further reported that a comprehensive report on the study will be available in about two (2) weeks. After its review, Marketing will prepare a listing of product requirements and a marketing plan by the March meeting.

MODEL 700 RESTYLED

Research reported that a drawing of the approved stock has been furnished to Production for estimating. Marked prints of various metal cosmetics have also been provided to Production for estimates of cost and timing.

I AM 0028342 1

I AM 0028076 1

CENTER FIRE RIFLESMODEL 7400-7600 - Contd.

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BOLT ACTION FIRE CONTROL

Research reported that they plan to meet with the Product Safety Committee this month to review the results of the recent focus panel interviews on Bolt Action Safeties and Bolt Locking. The results of the interviews will be discussed.

With regard to the program to design a new Bolt Action Safety, Research's approach is based on separating the Bolt Lock from the Safety, so that they can be operated independently. The focus panel results indicate that the customer generally prefers this approach as well.

IREM 0028337 / 1

IREM 0028056

CENTER FIRE RIFLES - Contd.BOLT ACTION FIRE CONTROL

Research reported that top priority is on the Bolt Lock design separate from the Safety. Further information should be available by the June meeting on the direction Research will take. Research emphasis will be on this design, and it will slow, but not stop, work on the two (2) new fire control designs which are at the layout and detail stage.

BOLT ACTION CARBINE

Marketing reported that, based upon the findings of the recent Bolt Action Carbine study and Marketing input, basic model requirements have been defined. Major requirements include:

- * Birch Stock with RW finish
- * Press checking and Swivel Studs
- * Bright Bolt Body
- * Model 700 style Fire Control and Bolt Handle
- * Stamped, hinged Floor Plate
- * Standard metal finish
- * 223, 6mm, 243, 308, 7mm-08 Calibers

Marketing feels that, with these model features, the carbine can be appropriately positioned between the Model 700 and 700 ADL.

Research reported that a model Stock is to be fabricated and shown to Marketing for review by the end of June.

RIM FIRE RIFLESNYLON 66 IMPROVEMENTS

IEN 0028336-1

IEN 0028054-1

FIREARMS LONG RANGE DEVELOPMENT PROGRAM - Contd.

Before getting into the individual reports, the Manager of the Ilion Research Division highlighted two items not scheduled for formal presentation - Bolt Action Rifle Fire Controls,

On the recommendation of the Product Safety Committee, Ilion Research is concentrating design efforts on relocating the Bolt Lock of the M/700, and separating its operation from the mechanism of the Safety. The objective is to provide the ability to unload the rifle with the Safety lever in the "ON" position.

Two engineering prototypes of the new Bolt Locks should be ready for review with Marketing in early August. In addition, new Fire Control designs that allow the shooter to put the Safety "ON" at any time during the firing cycle, will follow shortly thereafter.

[REM 0028335]

[REM 0028050]

October 18, 1979

CENTER FIRE RIFLESMODEL 700 BOLT LOCK

(1981 Introduction)

Research reported that two designs for a separate Bolt Lock are progressing. A model of each has been fabricated and assembled, but require revisions. The next samples of both designs will be ready for review in December.

MODEL 700 FIRE CONTROL IMPROVEMENT

(1982 Introduction)

Research reported that progress is continuing on both Fire Control designs. Detailing on one design is about 70% complete, with final completion in two weeks. The remaining design and detailing will take an additional 3 - 4 weeks. A completed prototype of both designs will be ready in January.

It was commented that Browning has now begun using a security mark on their products indicating that it has passed a battery of safety checks. SAAMI is also reviewing this.

BOLT ACTION CARBINE STYLING

(1982 Introduction)

Research reported that a model has been completed to the specifications agreed upon by Marketing and Research. This prototype, plus a current Model 600 for comparison, were shown to the Committee.

MODEL 742 - 280 REM CALIBERRIM FIRE RIFLES

IREM 00283311

IREM 00280441

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December 12, 1979

CENTER FIRE RIFLES

MODELS 7400 - 7600 - Contd.

MODEL 700 BOLT LOCK
(1981 Introduction)

Research reported that layouts of newly suggested designs are being made. Assembly of previous designs is scheduled for mid-December.

MODEL 700 FIRE CONTROL IMPROVEMENTS
(1982 Introduction)

Research reported that detailing of both systems have been completed, and 98% of the parts have been returned from the Model Shop. Assembly is anticipated for the first of the year. Prototypes will be available for review with the Committee at the January meeting.

IREM 0028327

IREM 0028016

CENTER FIRE RIFLESMODEL 700 BOLT LOCK - Contd.

The Chairman commented that, because of the purpose of this change, it is important to emphasize this item. Research felt that they could have a prototype available in May.

MODEL 700 FIRE CONTROL IMPROVEMENTS
(1982 Introduction)

Research reported that the two Fire Control designs have been assembled. The design with a Sear Block Safety is complete and ready for testing. The design with a Sear and Trigger Block Safety is still in the revision stage. All components necessary for the second model have been made except for the Safety arm. Scheduled assembly is mid-March.

BOLT ACTION CARBINE
(1982 Introduction)

Research reported that Actions in all five calibers have been assembled and will be ready for testing by the end of February.

Production reported that engineering estimates are being prepared based on preliminary drawings supplied by Research. Production expects to have high-spot costs available for review with Research in April.

PISTOLSXP-100 - 7MM BR REM. CALIBER
(1980 Introduction)

Production reported that due to the favorable customer reception to this model, they have amended the trial and pilot procedures, and are processing a larger than normal quantity of components, which are expected to be ready in March (Exhibit 6).

Barrel Blanks have been started. Tooling is available to process these blanks through cut-off and crown, which is about half way through the sequence of operations. Production is closely monitoring tool deliveries, and are expediting where possible. The goal is to have Barrel Assemblies complete in early March.

Sample Front Sight Ramps have been completed. Required revisions to the powder metal coining tools have been accomplished, and a production run of Ramps is scheduled for the first week of March.

April 16, 1980

CENTER FIRE RIFLESMODELS 7400 - 7600 - Contd.MODEL 700 BOLT-LOCK
(1981 Introduction)

Research reviewed a design concept for a selective Bolt Lock that is independent of the Fire Control. This system allows the shooter the freedom to choose the type of Bolt Lock operation he desires and to operate the Safety in any condition the rifle may be in. This means the Bolt may be open or closed, and the rifle may be fired or unfired.

Exhibit 4-2 shows the Safety in the "ON SAFE" position with the Bolt locked and the Bolt handle down.

Exhibit 4-3 shows the Safety in the "ON SAFE" position, the Bolt unlocked and the Bolt handle raised. Here the shooter depresses the release with his thumb to unlock the Bolt.

Exhibit 4-4 shows the Safety in the "ON SAFE" position, the Bolt unlocked with the Bolt handle raised and starting back to a load and unload position.

Exhibit 4-5 shows the Safety in the "OFF SAFE" position, the Bolt locked and the gun ready to fire.

Exhibit 4-6 shows the Safety again in the "OFF SAFE" position. The has been fired and the Bolt handle can be raised to load or unload the next round without having to depress the release.

MODEL 700 FIRE CONTROL IMPROVEMENTS
(1982 Introduction)

Research reviewed the operation of the improved Model 700 Fire Control. This Fire Control has been designed in conjunction with the new Bolt Lock system.

Exhibit 4-7 shows the Fire Control in a ready to fire condition. Note that the Safety, Trigger and Interceptor have a common pivot. This is done to reduce accumulated manufacturing tolerances of these critical components. Also note the Sear is supported by two independently moving parts.

IREM 0028325 1

IREM 0028303 1

CENTER FIRE RIFLESMODEL 700 FIRE CONTROL IMPROVEMENTS - Contd.

Exhibit 4-8 shows the Fire Control with the Safety in the "ON SAFE" position. There is no change in the position of the related components.

Exhibit 4-9 shows the Safety in the "ON SAFE" condition with the Trigger displaced. This illustrates that even when the Trigger is pulled with the Safety in the "ON SAFE" position, there is still support under the Sear and the shooter still has control of firing.

Exhibit 4-10 is a blown up section, showing the Trigger displaced and the Interceptor Bar supporting the Sear.

Exhibit 4-11 shows the Safety back to a ready-to-fire condition and the Trigger displaced. It will still fire with a near normal Trigger pull.

Exhibit 4-12 shows the Safety in the "ON SAFE" condition to depict the ability to put the gun in a safe condition after being fired by blocking the Sear. At present, this is the only Fire Control we know of which allows this to be done.

BOLT ACTION CARBINE
(1982 Introduction)

Research reported that five rifles each, in four calibers have been completed. Four handmade Stocks have been completed. Accuracy testing is satisfactory. Functional testing has not been completed.

Work is progressing on schedule for twenty-five 7MM-08 rifles for a Marketing test. Six Stocks have been received from Fajan and were inspected. The vendor has been notified and will furnish the other nineteen Stocks on schedule.

The prototype Floor Plate Latch designed for the original rifle worked well; however, because a new learning process would be required to operate it, a more convenient alternate design has been made. This new prototype works satisfactorily, but some revisions have been made to further simplify it and reduce costs. A model has been made and shown to Marketing.

Cost estimates for this model have been delayed until May. If re-design for cost purposes is required, the development date will be tight.

CENTER FIRE RIFLESMODELS 7400 - 7600 - Contd.

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MODEL 700 BOLT LOCK
(1981 Introduction)

Research reported that model drawings are complete for the latest Bolt Lock design, reviewed at the April meeting, and have been forwarded to Process Engineering for cost estimates. They requested Marketing approval to transmit the design, explaining that potential appearance changes should not affect the cost. Marketing responded that they are satisfied with the appearance of the latest design.

Production reported that work has already begun on the cost estimate.

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IAEH 002632

IAEH 0026004 1

CENTER FIRE RIFLESMODEL 700 FIRE CONTROL IMPROVEMENTS
(1982 Introduction)

Research reported that work is proceeding on three separate designs. New components for the original design are being fabricated. A Fire Control of the second design will be ready for assembly this week/BI May 26. A third design is in progress with parts being fabricated in the Model Shop. This third design will use existing Model 700 components, adding features of the Trigger Block and Sear operation from the first two designs. Tests will begin in mid-June.

In response to a question from the Chairman, Research indicated that none of the designs have been reviewed with Production or Marketing. The Chairman asked that this program be reviewed again in July.

BOLT ACTION CARBINE
(1982 Introduction)

Production reported that high spot factory costs for the Bolt Action Carbine with a custom checkered birch Stock have been determined and submitted to Marketing and Research. At Marketing's request, an additional estimate is being prepared using a cut checkered walnut Stock. A suggested retail selling price will be calculated for each option using current sales margins for the Model 700.

Research reported that function tests for all calibers are being run this week. Models in 7MM-08 REM Caliber for a Marketing field test are on schedule.

Research is reviewing the factory cost estimate. If redesign is not required, an updated parts list and drawings will be furnished to Process Engineering to be used for final cost purposes.

PISTOLSMODEL XP-100 - 7MM BR REM
(1980 Introduction)

Research reported that trial and pilot for this gun has been successfully completed.

"Chart XXXVI shows Category I projects, intended to put us in a more secure position with respect to product liability:

1. The Model 700 bolt lock has been redesigned to operate independently of the safety and to allow the shooter to reload his gun with the safety in the "ON" position. Production costs are being developed by Industrial Engineering and the final version is now in test.
2. Three different designs of the M700 Fire Control are being considered. Two are ready for release to the Test Lab and one is still on the drawing board. Upon successful completion of the Model 700, work will continue to develop similar mechanisms for all of our bolt action rifles.
3. The Model 788 safety is being redesigned to prevent accidental release of the safety lever. To do this, a more uniform detent is needed and the size of the safety button has been reduced.

"Chart XXXVII shows a time line schedule for Category I projects.

REM 0028321 1

REM 0027999 1

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FIREARMS RESEARCH DIVISION
ALLOCATION OF RESOURCES

Category	Em. Manpower	Budget 1980	Em. Manpower	Budget 1981
I NECESSITY	2.7	200M	2.9	200M
II COMMITMENTS	20.9	1,880M	21.2	2,000M
III NEW INITIATIVES				
IV OTHER WORK				
	23.6	2,080M	24.1	2,200M

CHART XXXV

G

FIREARMS RESEARCH DIVISION

CATEGORY I

NECESSITY

	Em. MANPOWER	Budget 1980	Em. MANPOWER	Budget 1981
M700 Bolt Lock	.7	115M	.5	75M
M700 FIRE CONTROL	1.2	120M	1.5	200M
M700 SAFETY	.3	20M	.5	60M
	2.2	255M	2.5	335M

CHART XXXVI

IREM 0028347

IREM 0028000

CENTER FIRE RIFLESMODEL FOUR LIMITED EDITION
(1981 Introduction)MODEL 700 BOLT LOCK

Research reported that five prototype Model 700 Rifles with the Bolt Lock and Fire Control Safety separated, are ready for testing. The prototype design includes blocks of both the Trigger and the Sear. Upon successful completion of tests, drawings can be transmitted to Production. Research noted that Production has estimated costs for the Bolt Lock, and indicated that drawings for estimating Fire Control costs will be released by December 20.

The Secretary reviewed the economics of adding the Bolt Lock to the Model 700 Fire Control (Exhibit 9). At Marketing's request, three cases were considered: 1) Adding the Bolt Lock with no price adjustment; 2) Adjusting the price to maintain margin and 3) Maintaining the price but deleting the sling currently included with BDL grades. Adding the Bolt Lock increases factory cost by \$3.00 per gun. Research noted that the Bolt Lock design will be reviewed for potential cost reductions before drawings are transmitted.

[REM 0028319] I

[REM 0027992] I

CENTER FIRE RIFLESMODEL 700 BDL - 7mm-08 REM
(1981 Introduction)

Production reviewed the economics of adding the 7mm-08 REM Caliber to the Model 700 BDL line (Exhibits 10 & 11). Margin and Return on Investment are slightly improved as a result of the incremental volume increase.

All tooling is currently available for this gun. Two hundred Trial and Pilot guns will be produced in April, with the next scheduled run of Short Actions.

MODEL 700 CLASSIC 7mm MAUSER (7 x 57)
(1981 Introduction)

Marketing reported that this non-catalogue version of the Model 700 Classic will be announced at the NRA Show in May, pending a successful Trial and Pilot.

Research indicated that tests have been satisfactorily completed on this model, and presented a sample for Committee review.

Production noted that the Mauser is currently scheduled for initial production to begin in April. The Secretary presented the economics of adding the Mauser Caliber to the Classic line (Exhibits 12 and 13).

Committee Action

The Operations Committee approved the addition of the 7mm Mauser (7 x 57) Caliber to the Model 700 Classic line.

MODEL 700 BOLT LOCK

Research presented samples of the Model 700 with and without the Bolt Lock feature for Committee review. Research has discussed potential cost reductions with Production, and the Plunger and Operating Handle are being re-evaluated. They pointed out, however, that costs are not expected to be reduced more than 5% to 10%. Five prototypes of the latest design are being tested along with the new Fire Control System. Testing will be completed this month.

A review of competitors' designs (Exhibit 14) indicates that a few of them have Bolt Locks but only the Colt Sauer has a Bolt Lock which can be released independent of the Safety.

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Feb. 11, 1981

CENTER FIRE RIFLES

MODEL FOUR LIMITED EDITION
(1981 Introduction)

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MODEL 700 FIRE CONTROL IMPROVEMENTS
(1983 Introduction)

Research reported that an alternative Model 700 Fire Control design has been completed, featuring a blocked trigger and sear. The design has the added advantage of making it very difficult to adjust the system to a "hair" Trigger. When adjusting to the extreme light trigger pull setting, the Safety binds and is difficult to move from "Safe On" to "Fire" position. Five prototypes of the new design are in test. The 100 round functional test portion has been completed and results indicate no major problems with the design. Dry cycle endurance tests are scheduled for the end of February. Drawings have been provided to Production for cost estimating.

Marketing noted that both the Fire Control Improvements and the Bolt Lock will influence long range Bolt Action Rifle strategy.

IREM 0028317

IREM 0027985