

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE



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File: Tech. Monthly Reports

FROM: W. H. Coleman II *W. H. Coleman II*

Ilion R & D and Technical

Monthly Reports

Constructive suggestions, ideas and criticism are welcomed by all
report contributors.

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Ilion, New York
May 27, 1988

TO: W.H. COLEMAN, II
FROM: L.B. BOSQUET/T.C. DOUGLAS

NEW PRODUCTS DEVELOPMENT MONTHLY REPORT - MAY

CURRENT PRODUCTS

SYNTHETIC LONG STOCK - MODEL 700 RS - Bosquet

All testing of the bedding block proposed by Choate to eliminate the visual objection to the tip of the stock contacting the barrel. Two versions of the block were tested against a standard walnut stock for any adverse effects on accuracy. Using the same barrelled actions for the three tests, all guns shot within Remington specifications (3.5 inch group at 100 yards). The average group sizes achieved were:

- o Rynite w/"vee" insert 1.941 inch group
- o Rynite w/plain insert 1.662 inch group
- o Walnut stock 1.949 inch group

Choate has been advised of the results and will incorporate the centralizing feature into his mold.

To effect a repair for approximately 3600 stocks on the plant, Choate was supplied 1500 machined inserts and has had a mold built to provide the balance. Samples have been received and are acceptable. Adhesive and primer have been purchased, approval has been granted for their use, an SOP has been prepared and a repair process has been developed.

Reporting on this item will be discontinued.

M/11-87/1100 FORE-END - Powers

A program is currently underway to redesign the fore end to eliminate a persistent cracking problem. Our personnel at S & K have proposed alterations to the fore end. They are: remove the fiberglass reinforcing patch and corresponding undercut and stop the finger groove cut about two inches from the rear of the fore-end. Testing of 30 fore ends of the proposed design showed that this design is not acceptable. It will be necessary to use some type of reinforcing material to keep the fore ends from splitting on the bottom. Ron Farrington was informed that none of the fore ends split in the finger groove area and that if it was easier to produce the shortened finger groove fore ends, Research had no objections. If this will be the new fore end, then Marketing needs to know ASAP so that the catalog will reflect the correct cosmetics. A new design fore end reinforcement has been sent out for quotations.

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SNIPER WEAPON SYSTEM - Snedeker

A meeting with Remington representatives was held on the 3rd of May at Picatinny Arsenal in New Jersey to discuss the results of the testing to date and review their concerns and Remington's.

The following lists the items the Government reviewed at this meeting: (as quoted directly from the Government letter on this matter).

- a. Trigger Pull - discuss Remington's progress on the new trigger pull gage and the ability to meet the requirement with the new gage set-up.
- b. Failure to eject problem - discuss Remington's analysis of the ejection problem and rationale on corrective action taken.
- c. Turned Reticle - one reticle turned approximately 30 deg. during the temperature extreme test and the Government needs an update on Leupolds's analysis.
- d. Corrosion Resistance Requirement - some of the components, in particular the firing pin, are not completely corrosion resistant. Recommendation for correction action is required.

The following failures have been noted during First Article Testing and are considered minor. These failures will be treated as correct and proceed, but recommendations for corrective action are requested.

- a. Interchangeability - one rifle had a long front trigger guard screw that prevented bolt from closing. One rifle had an external trigger adjustment screw that cross threaded.
- b. Cleanliness and optical quality (on the scope)- Particles in excess of the requirement were found on the lens after targeting and accuracy.
- c. Reattachment - front mounting bolt became loose (stripped) on one scope during temperature extreme test.

Remington discussed with the Government:

- Accelerated delivery issues.
- Endurance testing issues during production runs.
- First Article test requirements for Remington manufactured barrels.

The first mandrel for the Remington 5R, 11.25 inch twist GFM produced SWS barrels is on plant. It is planned to run a small lot of barrels in early June for testing.

FLEXIBLE SMALL PARTS ASSEMBLY - Baszczuk

A.R. Baszczuk has been placed on temporary assignment at S&K in Missouri. All responsibility for this item has been transferred to the ATO engineering group and all reporting will be done by them.

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BOSTOMATIC CHECKERING MACHINE - Monteau/Hickey

Investigation into a means of providing additional memory for the Bostomatic checkering machine has been broadened in scope. One of the systems being looked into has the potential for providing faster, more trouble-free pattern change-over by being able to store all of the patterns for the Bostomatic and those for the Co.Re.Ma. and the five multi-spindle machines as well. This would allow the operator to simply call up the desired pattern from memory and down-load it directly to a specific machine. The elimination of the tape readers would be an added benefit.

Once firm quotations have been received, an evaluation of the two systems will be made and a path forward determined.

To help increase the float capabilities of the cutter heads and reduce the amount of touch-up required, the nose piece and follower shoes have been redesigned and are being built. They will be installed as soon as they are available.

EKSTROM-CARLSON CHECKERING MACHINE - Monteau/Hickey

Work is progressing satisfactorily on the program to have Synermation complete the "INSERT CHECKER" routine which will provide the capability to program both fore-end and stock patterns. A letter acknowledging acceptance of their specification package was forwarded to Purchasing on May 18. A completion date of June 27 has been specified. Their progress is being monitored thru weekly communication.

A more economical cutter motor, designed to Remington specifications, has been placed on order with Air Turbine Technology. This motor has been designed to fit both the Bostomatic and the Ekstrom-Carlson equipment. Delivery is expected toward the end of June. An engineer will be visiting the Air Turbine Technology facility in early June (at their request) to review the final design.

The need to access and revise the Programmable Application Logic (PAL) on the Allen Bradley 7320 controller has been addressed. A quotation has been received and it has been decided to contract Ekstrom-Carlson to make the changes as the machine uses an obsolete controller and it is nearly impossible to obtain the necessary programming manuals. A purchase requisition will be issued to cover this.

In anticipation of the need for additional checkering capacity in the future, information was requested from Ekstrom-Carlson on their new equipment. A budgetary capital requirement has been included in the 1989 capital forecast.

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MULTI-HEAD CHECKERING SOFTWARE - Monteau/Hickey

On May 9 Synermation was notified that purchase order LRI-82903 had been cancelled. This order was placed several years ago to cover rewriting of the checkering software and to remove it from the GE 4020 and make it compatible with the Computervision system. Synermation was not successful in doing this.

American Bay Limited is making excellent progress in converting the GE 4020 software to run on our Compaq 386 PDs. Bob Turner has sent in a second disc which will be loaded and tried within the next couple of weeks. A known program will be trial loaded onto the disc to determine what debugging is necessary and where in the software the bugs are. If everything works correctly, the net result will be a tape for a pistol grip. Work is still underway on the routines required to program a fore-end.

The decision was made early in the month to cancel the service contracts on the GE 4020 as we were unable to do any checkering work on it and nearly everything else had been removed. The contracts have been discontinued and the computer has been removed from the plant. This will result in a cost avoidance of \$40,000 annually.

TOOL DESIGN - Monteau

Investigation has been started into replacing the Bruning Model 870 blueprint print machine. The current machine is about twelve years old and uses an ammonia development system to process prints. The initial investigation has been centered around an ammonia-less system. This would eliminate the need for ammonia lines coming into the print room and the potential hazards involved. It would also eliminate the exhaust system required for removing both heat and fumes from the area. More investigation needs to be done before a clear path forward can be established.

SMALL PARTS FMS - Baszczuk

There has been little activity on this project the past several months due to more urgent priorities.

A process to machine Model 11-87 and Model 870 breech bolts on the FMS is being developed. A test program is being written by the NC group to determine whether or not the T10 machines can hold the required tolerance between the inside of the locking block slot and the bolt face using the "B" load fixture. 100 breech bolts will be cut and inspected. Completion is expected by June 10.

It may be necessary to review the feasibility of putting the breech bolts on the FMS due to increases in production schedules which will tend to make the set-ups long duration. This may be contrary to the best utilization of the equipment.

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N/C SHOP - Sanzo/Rankins/Jones/Kozakowski

7400 - 7600 RECEIVER

A trial run of 300 parts is currently being followed on machine #14 to check cutter life, machine errors, cycle times and inspection procedures. A problem with the fit of the receiver insert was found to be a design problem unrelated to the machining process and has been resolved. The discrepancies between CMM readings and the current hard gaging are still being investigated.

An aluminum fore-end former has been completed. This former will be used to produce the trial and pilot run of parts and if no further changes are necessary, it will then be used to make the permanent steel former.

SLUG GUN SYSTEM:

Programs and cutters are complete and ready for making a quantity of scope bases for the projection weld process. A fixture and blanks are being made in the model shop. Both designs (brazed and projection welded) will be evaluated in prototype testing.

SUPPORT TO PRODUCTION:

In addition to project associated work and FMS programming and optimization, a program was started to fabricate a total of 33 follower wheels (B-87224-A and B) for production. Completion is scheduled for June 3. Also scheduled, but not started yet is a new Model Four stock former.

FMS MODELING - Findlay

Re-modeling is complete on the M/1100 LT-20 receiver for FMS production. This work and a detailed drawing will be turned over to the N/C and FMS groups by June 30th to begin process definition and N/C programming. Upon completion of the M/1100 LT-20, modeling of the M/870 LW receiver will begin.

ASSISTANCE TO THE PLANT - Baszczuk

The plant has requested the assistance of A.R.Baszczuk at the S&K facilities in Lexington, Missouri. He has been at S&K on two occasions recently to provide technical assistance in identifying and correcting problems which have caused the wood to become a major constraint to meeting company goals. It is expected that he will be at S&K for the next six months.

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NEW PRODUCTS - 1988 CATALOG

PARKER - Murphy

The primary emphasis in the previous month was directed at resolving barrel assembly brazing: the critical path item of the Parker program.

A "Brazing Summit" was scheduled for April 28 with Kolar in Racine. Representatives from Kolar, Remington, DuPont, Lucas-Milhaupt, and Radyne were present. The development of a brazing process for barrels was discussed at length and several action items resulted. Among them:

- o a brazing consultant (Thomas J. Banski) is in the process of being hired. To date, Mr. Banski has proposed a dip brazing method that meets all of our guidelines.

- o Kolar's furnace is being characterized so that future brazing testing will be meaningful.

- o Kolar has forwarded barrel component prints to R.S.Murphy and F.Schmidt. Wall Colmonoy and Tocco are being contacted.

- o Kolar's involvement with Radyne to induction braze our barrels will be terminated.

- o Lucas-Milhaupt promised to quote on developing a process to torch braze the barrel assembly and demonstrate their ability to do so.

- o a sample of Easyflo 35 brazing alloy will be supplied by Lucas-Milhaupt for future testing.

Since our brazing meeting, furnace braze testing indicates that some loss of hardness may result from this type of assembly. The barrel strength calculations are being reviewed with this in mind. Lucas-Milhaupt declined to quote on process development or prototyping because of the liability exposure of assembling gun barrels. They need to be educated as to our protection of our vendors to proceed.

Remington's relationship with Mr. Banski is already beginning to pay off. He has given us direction on resolving furnace brazing questions as well as introducing a new dip brazing approach. Mr. Banski has identified a brazing job shop that is knowledgeable in dip and belt furnace brazing and feels confident that they can successfully assemble our barrels. This will be pursued and a purchase requisition is being written to cover the cost of prototyping.

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A meeting was held with Process Engineering and the Custom Shop to formalize a procedure to transmit the Parker to the plant. Several questions were answered regarding the need for part numbers, drawing format, material and heat treatment recording, and Remington Standards as they relate to the Parker. Concerning the question of incoming component inspection, legal input is needed to help determine exactly what inspection is required. A meeting will be scheduled with legal to resolve this issue.

The first draft of the Parker owners manual has been done on the Technical Publishing System and has been reviewed. The benefits of this system are becoming apparent as the corrections and modifications are being made. The show Parker has been requested from Marketing and will be used for photos employed in making illustrations for this manual.

MODEL 700 CLASSIC .35 WHELEN - Bosquet

The availability of wood has caused the trial and pilot assembly of this gun to be delayed. Assembly is now scheduled early June. The Test and Measurement Lab will be notified when guns are ready and will select their sample from the warehouse. Release for invoiced shipment will be requested as soon as the sample has passed design verification testing.

MODEL 700 MOUNTAIN RIFLE CALIBER ADDITIONS - Bosquet

Stocks are now available and they are being cut checkered with no apparent problems so far. Trial and pilot assembly began in early May. The Test and Measurement Lab was notified at the end of the month that guns were available and they selected their sample. The trial and pilot guns were produced in 7mm-08 caliber. A quantity of .308 Win. and .243 Win were also produced and will be made available for testing. Release for invoiced shipment will be requested at the completion of testing.

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NEW PRODUCTS - 1989 CATALOG

SP-10 MAGNUM - Rowlands/Bauman/Lewis/Verdura

Most of the guns in the 12 gun test are now at the 4000 round level. Improvements were made to the extraction system at the 2200 round level and since then the guns have experienced an average malfunction rate of .95% in the jacks and .5% during field testing.

The following parts failed to reach the 4000 round endurance level and will be modified to improve their durability.

ACTION SPRING PLUNGER:	2	failures	-	1840	to	2115	rounds
OPERATING HANDLE:	3	"	-	1220	to	3600	"
LINK PIVOT PIN:	8	"	-	1199	to	3295	"
LINK:	3	"	-	2795	to	3095	"

Except for the Link Pivot Pin failures, the others are more likely attributable to the severity of our jack testing and might not have occurred if the guns were shot from the shoulder. Therefore a decision will have to be made as to whether to use the parts we have on hand for the pilot run guns or to order new parts after redesign.

The back-up design of a feeding and extraction system that will invalidate the Ithaca Patents has encountered some manufacturing problems and will not be ready for testing until mid-June.

A standard length 10 ga. choke tube has been developed that gives an average pattern density of 78.3%. Additional tubes are being developed to give the full range of pattern densities. It is felt that this gun should be offered only with two choke tubes; Full and Modified. It is felt that patterns below 60% with large steel shot will not provide good "killing power". Marketing will be contacted for their input.

The first meeting of the Design Review Team was held May 26. An overview of the review process was presented and the team members were shown the SP-10 Mag. cut-away gun and the improvements compared with the Ithaca Mag-10 were discussed. Sub teams were assigned to examine the firearm from a systems approach using a form of failure mode analysis and report back their findings.

Drop testing of the proposed package design will take place when guns are available from the twelve gun test.

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Of the estimated 7700 hours of tool design required for this project, 90% have been completed and are being built. All remaining design work has been contracted to outside design firms or assigned in-house.

All item masters and product structures have been submitted and are being verified as they are entered into the system. Work on process records is continuing.

Checkering patterns have been transmitted and are being programmed. Pending completion of the "INSERT CHECKER" routine for the Ekstrom-Carlson machine, the stock will be programmed on the Bostomatic. Locators for the checkering the stock and fore-end have been designed and are being built.

A purchase order was issued for a Milwaukee-Matic 1015 manufacturing center with a five pallet handling system on March 7. This machine will perform several cuts on the receiver, and will machine the barrel extension and gas piston lug. The acceptance run-off and delivery of the machine is scheduled for July. The fixturing has been delayed but steps are being taken to provide an alternative means of machining the trial and pilot parts.

Plans are being formulated to change the trial and pilot meeting on this model form every other week to a weekly format. Details have not been finalized but the intent is to begin tracking all aspects of the project (raw materials, components, item masters, product structures, process records, etc.) to be sure that nothing is overlooked.

MODEL 700 CLASSIC .300 WEATHERBY MAGNUM - Martin

The Model 700 Classic offering for 1989 will be the .300 Weatherby Magnum. This will be a synergistic offering from Firearms and Ammunition. Lonoke has provided Ilion with chamber drawings and reamers. Ilion will provide Lonoke with three pressure barrels and one complete firearm for their ammunition development. Ilion will have five more completed rifles awaiting shipment of pilot run ammunition for Design Acceptance Testing.

Proof loads have been developed by Ilion. Accuracy has been shot using Weatherby ammunition. The bullet weights of 150 grain and 180 grain tested 1.65 inches and 1.35 inches respectively. Remington ammunition is expected in late June.

Chamber tooling and gaging will be ordered from advance prints to assure their being available to run trial and pilot.

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MODEL 1100 MAGNUM RETROFIT BARREL/STEEL SHOT - Franz/Powers

The Test & Measurement Lab report has been approved and distributed. The Product Team set the following specifications at the last meeting:

M/1100 12 ga. Steel Shot Barrel Specifications

Gauge: 12
Barrel Rollmark: 2 3/4 inch Magnum and 3 inch Magnum
Steel Only
Orifice: one .088 in.
One Choke Tube:
- Name: Extra Long-Range Steel Shot
- 80% patterns at 40 yds. (w/2 3/4" Magnum
2's)
- constriction: same as current full tube
- material: VascoMax 250 Maraging Steel
- titanium nitride finish
Barrel Lengths: 26 and 30 in.
Barrel Finish: Standard polish Black Oxide finish.

It was decided by the Product Team that an information hang tag will be attached to the barrel. A draft of the hang tag will be reviewed by the Marketing group.

TURKEY CHOKE TUBE - Powers

All pattern evaluation work has been completed. All data supports the previous testing which indicates that "Greater than Full" choke performance is not achievable in the standard bore configuration. Further development work on this program by the Ilion Technical Section has stopped.

Kolar Arms will attempt to develop a Turkey choke tube. Any tube developed by Kolar will undergo final Design Review and Design Acceptance Testing by the Ilion Technical Section.

MODEL 870 FUNCTIONAL IMPROVEMENTS - Lewis/Verdura

Twenty-five of the new Delrin ejector bases have been sent to Aberdeen Proving Ground for liquid compatibility testing. This test must be passed on any future military contract for shotguns. No word has been received to date.

Process records and structures are complete and are on the system except for police versions which use the new ejector system. Police structures will not be activated until successful completion of trial and pilot.

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SLUG GUN SYSTEM - D.Findlay

The objective of this program is to improve the accuracy of the Model 11-87 and Model 870 12 guage Deer Guns through the use of a barrel mounted scope system and a rifled choke tube. The goals of the program are to achieve five shot groups of three inches or less using Remington, Winchester and BRI Sabot slugs.

Twenty-one design acceptance choke tubes were received from the screw machine vendor on February 19th. These tubes, made from VascoMax 250 maraging steel, have been heat treated and sent to Cation Corporation for the addition of the rifling. Ten design acceptance samples have been received and have been sent to the Test Lab. Testing will determine group size for accuracy, turn out, and-seizing potential in 2000 rounds, using various ammunition types.

Design work has been finalized on the cantilever and scope mount base designs and fabrication has been initiated on two different scope mount designs. Work on a second scope mount design was begun since it appeared to be a less costly to manufacture than the initial NBAR based design. Quotes have been obtained on the NBAR based scope mount design from the MIM group and indicate that five months are required from initial transmittal to trial and pilot quantities. This time frame is identical for the second design currently being built although it should be more economical to produce. Leupold and Tasco have been contacted and will be asked if anything currently in their product line will fit the cantilever mount design or will fit it with minor alterations. If these discussions are positive it is likely that the introduction time can be shortened. Testing on the damping characteristics of the cantilever mount have been completed and acceptable damping times of .1 seconds were obtained with a steel cantilever and neoprene rubber rear dampener. A sample gun was presented at the May Product Team meeting and was viewed very positively by the group.

MODEL 870/1100 LIGHTWEIGHT RESTYLE PROGRAM - Lewis/Verdura

All specifications for these models have been reviewed and agreed on. The complete drawing package has been transmitted. The process records and item masters have been completed. The product structures are being worked on and should be complete by the end of the month.

These improvements will be phased in in 1988 and cataloged in 1989.

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MODEL 7400-4, 7600-6 CONSOLIDATION - Lewis/Verdura

Process records, item masters and product structures have been written and are ready to issue.

The consolidation of these models will be phased in as scheduling permits in 1988 and will be included in the 1989 catalog.

MODEL 700 SYNTHETIC ARYLON STOCK - Smith

The synthetic stock offering for 1989 will be made from Du Pont Arylon. This stock will replace the current stocks made from Rynite and the right hand fiberglass stocks from Brown Precision. The Arylon stocks will be made in Lee Six's current mold. The options will be as follows:

- BDL only
- long action
- short action
- magnum barrel channel
- varmint barrel channel

These stocks will be purchased from Six for \$23.85/stock and will include sling swivels and recoil pad, installed.

Lee will in the plant on May 26 to discuss and finalize the details of this agreement. Also at that meeting will be Harding Manufacturing and a representative from a Tool and Die shop who will be making any necessary changes to the mold.

Our plan is to progress with the 501 Arylon, which is 30% Fiberglas filled, which has been tested and proven, we will continue to look at the 10% and 20% Arylon as we receive acceptable samples from DuPont (the 10% and 20% Arylon will help us reduce the weight of the stock by up to 5 oz.).

This offering gives us first use of Arylon as a stock material and will replace the Brown Precision and Choate stocks for 1989, however the question of long range supply of synthetic stocks has not been answered and the determination of us developing a mold with a Mountain Rifle outside configuration also has not been answered.

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NEW PRODUCTS AND PROCESSES - 1990 AND BEYOND

NEW .22 AUTOLOADING RIFLE - Smith/Jackson/D.Findlay, Sr.

This program will replace the present family of synthetic stock autoloaders, the N-66 and N-77. The current process is over 25 years old and uses special equipment and molds which are nearing the end of their useful life. The new autoloader will be designed around an existing barrel and magazine box to allow the remainder of the parts to be sourced with minimal machining and finishing operations required. The wood stock version of this gun must be price competitive with the Ruger 10-22.

Bill Marks, of DuPont, was in May 4 to discuss material selection on selected components. It was decided to look into the use of Graphite filled polymers for the receiver and housing. Bill will work with the Composites group at TSL on this and we will supply him with detailed drawings of these parts as soon as we have them.

The detailing of components has begun with the 'sear' being the first part sent to Model Shop for fabrication. As more parts are detailed we can begin our tolerance study of the system.

A laminated stock blank has been received and will be used for the first prototype gun.

The only major component not yet complete is the stock. Tom Plunket is modeling and surfacing the straight laminated wood primary design. The low cost beaver-tail synthetic stock will be done after completion of the wood stock.

The Test Lab is doing bolt velocities, cycle times, and Pressure/Time curves on N/66's and N/77's. This data will be put in Scott Franz's newly developed "blow-back" computer simulation program to validate the program. Once validated, the computer simulation will be used to refine the operating parameters of the new rifle design.

SHOTGUN BARREL AUTOMATION - Baszczuk

The Pilger tests to produce sample cold form shotgun barrels with finished bore and chamber and partially finished outside contour have been delayed until A.R Baszczuk has returned from his temporary assignment at S&K in Missouri.

Reporting on this item will be discontinued until the fall.

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NEW CONCEPT SHOTGUN - Powers

The computer simulation model for the gas-assisted inertia operated shotgun has been completed and trial runs have been made to determine the system parameters required for optimum performance.

A preliminary layout for a gas-assisted inertia operating gun has been submitted by Dick Rego and Earl Seppala.

Initial testing of the KFC prototype gas-assisted recoil gun has begun. This prototype is currently operating with all loads from standard target to 2 3/4" steel to 3" Magnum. Much more testing is planned, including bolt velocity measurements and extensive high speed movies. The results of this testing will aid in verification and refinement of our computer simulation.

The high-speed movie equipment has been received and will be used for testing the modified KFC m/250. Two movies have been taken and are awaiting processing.

Recoil reduction efforts will center on recoil pad material/design and possibly using some type of "hydraulic" damping unit in the stock. A M/11-87 was sent to "The Shooter's Emporium" for retrofitting a hydraulic recoil reduction device. We have received the gun with the modification. It looks good. Samples of a new recoil pad material from the EAR Co. have been received for evaluation. As a result of a meeting with the EAR people we have received a large sheet of the material they feel will best meet our needs. We also met with two people from DuPont (IPD & PPD) who will supply us with some material for evaluation. All of the above should be evaluated by the first half of June.

MILITARY SPECIFICATION M/870 SHOTGUN - Findlay

This program is intended to enable the M/870 pump shotgun to meet Mil Spec 3443, which will allow Remington to bid on any future U.S. Government contracts. John Rogers is working on getting the current version of Mil Spec 3443.

Design work is 75% complete on a Class I Mil Spec.3443 shotgun. Parts for this bayonet adapter and heat shield equipped firearm are being received from the model shop to try two different bayonet adapter designs. A sample of each design should be ready for weight testing in early July.

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NEW BOLT ACTION RIFLE - Martin/Jackson

The receiver design will be a standard M/700 receiver with secondary cuts required for the bolt lock and possibly minor cosmetic changes in non-critical areas. We will continue to investigate providing the gun with rings and bases versus the previous integral receiver mounting.

The barrel will be a Custom Shop contour with a Mountain rifle crown. Upgraded iron sights as provided on Custom models.

The magazine box will have a detachable bottom that will conceal any gaps or mismatch between the box, trigger guard, and/or the stock. First prototypes of the new design are due in August.

The trigger guard, magazine follower, magazine release, and magazine spring have been sent out for quotes.

Testing of a patented new technology rifle barrel is currently underway in a joint program between Remington and D.C.Brennan Firearms, Inc. The Brennan technology claims a 25% increase in accuracy with reduced recoil. However, test results to date show no significant improvement over our current design (at the 95% confidence level).

A test is being set up to reshoot the rifles using standard Sportsman 78 stocks with fore end bedding pressure. The results of these tests will determine if it is warranted to continue with this program.

ELECTRO-CHEMICAL RIFLING - Lewis

A Part II on this project has to be submitted. Quotes are needed from Cation Corporation and estimated testing costs are needed from the Test Lab.