

REMINGTON ARMS COMPANY, INC.

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March 30, 1990

CONFIDENTIAL

TO: W.H. COLEMAN, II

FROM: H.C. MUNSON *H.C. Munson*

PROGRESS REPORT - MARCH 1990  
FIREARMS DESIGN

.22 Rimfire Rifle (Findlay/Smith/Franz)

An interim transmittal has been started with drawings sent to Process Engineering for final estimating and establishing of process records.

A second Focus Panel was held on March 13, in Detroit, Michigan. Again, the prototype synthetic stock rifle was the overall favorite. We also met with K-Mart and showed them the gun; they also received the rifle very well and thought it would fit well with their sales needs. The only objection that they stated was the 10-shot clip looked too military. They prefer the 5-shot clip with the rifle, and the 10-shot clip as an accessory item.

On March 15, Ron Polley and I visited TSL at Chestnut Run and spent the day reviewing the plastic components with Bill Marks, Warren Kenney and Bud Glenn. We were able to review the striker, receiver and housing. Their input is very valuable in the tool building phase. We plan to meet with them again when Ron has some tool drawings that we can discuss. We also had a chance to talk with Chris Tice, who works with structural foam parts and molding. Chris had some material ideas for the stock, suggesting foamed Rynite mixed with recycled plastic bottle material, which is also a P.E.T. resin like Rynite. This could also be used to make our M/700 stock. Chris has agreed to ship material for a trial run to Trico in Azusa, California, where our M/700 stock is made. We will need to visit Trico Plastics in Little Rock, Arkansas, which is the company that will build the stock mold for the .22.

An alternative design for the receiver and housing, made from die cast aluminum, is being prepared by Tom Powers. Current material is graphite reinforced Rynite SST-35. Remodeling the receiver is being done in accordance with recommendations from our aluminum die casting vendor and their outside tool designer. When that is complete, redesign of the housing will follow.

Scott Franz has been asked to assist the Design Team in three areas:

- Ignition Reliability
- Functional Reliability
- Trigger Pull

To date, the following has been accomplished:

- Ammo extremes have been identified. By using only the two ammunition extremes a considerable amount of time will be saved in testing.
- Measurements have started to define the current level of performance with the ammunition extremes. This will be ongoing.
- A computer model that simulates a blowback type action system has been updated to simulate the .22 autoloader.
- Simulation accuracy is being determined by comparing predicted bolt travel versus time data to measured data. This verification stage is in-process. If accuracy is not acceptable, the model will be improved.
- System optimization will be done on the computer and verified with testing to improve the functional reliability and robustness of the design.

#### M/700 Synthetic Stock (Smith)

The testing of the polypropylene stocks is complete with satisfactory completion of all phases of testing. A piece of one stock was analyzed by TSL showing that the polypropylene is reinforced with 13% glass fibers.

As stated above, we hope to have stocks made of foamed Rynite to test in April. We will need to choose a replacement material for Arylon so that any alterations to the mold can be scheduled and a test phase can be planned.

#### 7MM Weatherby Magnum - M/700 Classic (Martin)

Six prototype classic rifles, along with a test request and outline, have been sent to the Test Lab for test scheduling and completion. The DCR/PLCN has been completed and will be transmitted upon successful test completion. This testing may be slowed because of ammunition production. Final testing may still have to be done with trial and pilot testing, in order to meet production schedules.

Sniper Rifle (Martin)

Technical support is provided as necessary. Work on the Remington SR (type of rifling) barrel is to continue. Thirty samples are to be made and tested.

New Bolt Action Rifle (Martin)

This program is on hold until the .22 Rimfire and O/U Shotgun programs clear the Design Area. We will continue to work on it as time permits.

XP-100 Wood Stock (Martin)

Marketing has accepted the sample stock prepared by Bishop stock makers. The test program is to be outlined and samples obtained. Contact will be made with the vendor to determine delivery dates for the various stages of the program. Drawings will be completed by the end of March 1990.

New Centerfire Autoloading Rifle (Powers/Findlay, Sr.)

The design is still in the initial layout phase, and temporarily on hold due to Dave Findlay, Sr. resuming work on the .22 Rimfire. Dave had brought the layout far enough to feel confident the concept will work. The design will still feature a striker, which is somewhat revolutionary and requires more time for the initial layout.

Over/Under Shotgun (Bauman/Rowlands)

Remington has decided to introduce a field O/U Shotgun in mid-1992. This schedule requires concurrent engineering methods.

O/U Specifications were developed in a meeting involving Design, Marketing, Process Engineering, Production and Cost Representatives.

Design Engineers worked closely with Process and Industrial Engineers, Production and Purchasing to establish a preliminary cost estimate.

Competitive guns were gathered, and disassembled for examination in the Armorer's School Training Room. This provides a good setting for evaluating best features and also provides a regular gathering place to promote communications among all functions. A summarization/status meeting is held each Monday at 11:00.

SP-10 Mag. (Rowlands)

A 10 Gauge 22" rifle sighted barrel is being developed to be offered in a 1990 SP-10 Mag. Combo Package and for future extra barrel sales.

Testing has begun on 10 guns equipped with 22" rifle sighted barrels. The main purpose of the test is to optimize the gas orifice hole for reliable operation and to determine if SAAMI accuracy specs can be met when firing rifled slugs through the existing choke tubes.

Additional items also included in this test are two requested by Process Engineering, both of which will eliminate the use of hazardous materials. These are a new loctite assembly procedure for the magazine tube, as well as a new pre-applied adhesive for the fore end washer.

Additional improvement items also included in the test are new carrier and slide link castings and a new magazine follower that will make assembly/disassembly easier.

Test results to date, indicate that the 22" barrels will function reliably with rifled slugs and turkey loads with the same 7/64" orifice hole as the 26" barrel.

Accuracy with rifled slugs, when shot through the existing choke tubes, barely meets SAAMI specs. A new choke tube design will also be tested to see if these results can be improved significantly.

During the test, bolt buffers have been failing at extremely low levels, starting as low as 283 rounds and averaging 451 rounds. A reason for this poor performance, compared to the previous trial and pilot test, has not been determined.

Model 90-T (Murphy/USCA)

Three guns are being used as stand-ins for early state shoots. Our initial requirement for one gun early in March was met. The Custom Shop has completed engraved, colored metalwork and the stocks and fore ends are expected from Fajen.

Two guns with extra barrels, (one with an extra trigger group), successfully passed a packaging integrity test. The order for the styrofoam insert can now be processed.

Castings are progressing well with the exception of the receiver, the most difficult part. We will need to machine the exterior surface in some areas, with the potential to expose porosity. A second concern regards the receiver surface finish, found to be poor on the first sample castings. The caster has been contacted and we are working through this problem. Fred Schmidt spent February 26 & 27 with USCA and the caster to help them through any start-up problems.

USCA is expected to ship ten guns for design acceptance testing to Ilion by April 13.

Parker (Murphy/USCA)

The six prototypes are being modified to reflect the latest ejector changes and will be returned to Ilion.

USCA is presently assembling Heckert's barrels. They will be ready to engrave in eight weeks. The stocking, color, reassembly and test of this gun will be complete by June 1.

USCA is final-machining receivers, and production metalwork will start flowing to Ilion in July. We expect to begin satisfying existing orders September 1.

Elvaloy Recoil Pad (Powers)

As a result of the meeting with Gerry Helmer, John Simpson, Ron Farrington and others held on January 30, we agreed that our only application for this pad would be for the 870 Express. Because of this, we have asked the vendor to provide additional prototype pads which are sized to the 870 stock. These prototypes will be shipped to Gerry Helmer for processing. We have also asked for a requote on mold and piece prices, based upon the 870 Express volume. We will re-evaluate the potential processing savings for this project.

M/11-87 Police (FBI) (Powers)

The FBI shipped two of the prototypes to the Tennessee Highway Patrol and the U.S. Border Patrol. Testing has finally begun on the remaining two guns in the FBI's possession. There is growing interest for a police autoloader and our plans call for building twelve more prototypes for loan to interested agencies. The Product Team decided that this gun should be brought to market as soon as possible.

M/11-87 / 1100 Fore End Improvement (Powers)

S&K is to provide fifty new samples (with shortened finger groove) for test, as the previous one's were not dimensionally correct. Our S&K/Ilion wood personnel will conduct their own test on fifty fore ends, which have RKW finish sprayed on the inside.

Magazine Swivel & Retainer 'Coleman' Design (Bauman)

All drawing changes were completed for initial transmittal to production of swivels for M/1100, 870, 11-87, Special Field, 12, 20, 28, 410 gauges.

With Michael's of Oregon, we developed swivel sample parts and tested (shooting four guns - 2,000 RDS ea). Assembly fixturing and tooling sketches were made, and tooling provided to Production for start-up.

Purchased Parts Inspection has received production quantities and assembly of components is underway.

Custom Gun Design Activities (McCormack)

The Model XP-100R is nearly ready for production. Trial & Pilot stocks have been received from McMillan and product acceptance tests are now being run. The owner's manual, field service manual, product standard parts list and drawings have been prepared for transmittal.

A Safari 'KS' in 416 Rem. Mag. was prepared for Ed Matunas, who is a magazine writer. He wanted some special work done on it.

We have developed an excellent working relationship with Safari Club International over the last few years through our displaying Custom Shop products at their annual convention. We entered another order for some M/700 ADL LS rifles for them to use at their local chapter levels for promotional efforts. This is good exposure for Remington products.

An excellent relationship also exists between Remington and the Foundation for North American Wild Sheep. We participated in their annual convention with a display of Custom Shop products.

The Custom Shop order backlog is at a very high level - about three times normal. This is heavily influenced by the .416 which accounts for almost half of the orders. Several steps have been taken to improve output including additional overtime, adding people and testing in the production gallery for .416 Safari Rifles. Also, all orders for Custom Guns will now be shipped through the Ilion Warehouse instead of Syracuse. This should significantly improve service.

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