

LIMITED DISTRIBUTION

ILION RESEARCH DIVISION  
PROGRESS REPORT - HIGHLIGHTS  
AUGUST 1983

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R. L. Hall	J. S. Martin
C. B. Workman	C. E. Ritchie
<u>J. W. Bower</u>	R. J. Sanzo
J. W. Brooks	R. L. Sassone

*Remington Arms Company, Inc.*

NEW PRODUCT DEVELOPMENT

(J. S. Martin)

Model 1100 Special Shotgun

(D. S. Findlay, T. P. Powers)

Research effort on prevention of cracking in the Model 1100 Special fore-ends has been concentrated on two primary designs.

Both designs utilize a new detent system retained in the magazine tube. Plastic molds for this system have been received. These prototype molds can be used to support production through the end of this year. Parts from these molds have passed initial testing.

The first design is a buffered fore-end having an elastomer sleeve retained in the fore-end. Sample molded parts have been received and five samples are in test at this time.

<u>Gun</u>	<u>Total Rounds</u>	<u>Mag.</u>	<u>Express</u>	<u>Light Field</u>	<u>Results</u>
1	7305	2805	3500	1000	Broken barrel support
2	6850	2350	3500	1000	Broken magazine tube
3	5900	1400	3500	1000	Broken bolt
4	1150	115	805	230	Still in test
5	5200	700	3500	1000	Broken interceptor latch

The second contingency design utilizes an extension on the magazine cap which separates the fore-end from the internal loads caused by the barrel. Parts for this system are in test.

Currently, all five test samples have been shot 5,000 rounds utilizing 10% magnum, 20% light field, and 70% express loads. All fore-ends passed this test without cracking. The test was continued with 100% magnums with the following results:

<u>Gun</u>	<u>Total Rounds</u>	<u>Mag.</u>	<u>Express</u>	<u>Light Field</u>	<u>Results</u>
1	6125	1625	3500	1000	Broken action bar
2	9975	5475	3500	1000	Broken barrel support
3	8275	3775	3500	1000	Broken action bar
4	9740	5240	3500	1000	Broken bolt
5	9250	4760	3500	1000	Broken action bar

Components for fifty samples of each design have been started to perform a statistical analysis of the fore-end strain with a higher confidence level. A final endurance test on the selected design is planned.

Since at this time both designs appear to be acceptable, the results of a cost estimate being done by Process Engineering will have a significant impact on the decision on which approach to adopt. This estimate is expected to be completed by September 1.

Model 870 Special Field (D. S. Findlay, F. H. Smith)

All drawings have been transmitted to the plant. Samples have been started for catalog pictures and Marketing evaluation. These should be ready by August 31.

Model 870 Restyle (D. S. Findlay, K. L. Calkins)

A partial drawing package and a completed parts list have been sent to Process to start work on the cost and capital estimates. A completed drawing package will be ready by August 30.

Parts for test guns and for Marketing samples have been initiated and will be completed by September 15. Testing of these samples will be completed by September 30.

New Autoloading Shotgun (D. S. Findlay, J. L. Kast)

This shotgun is tentatively scheduled to replace the Model 1100 in 1987. Objectives include improved strength, lighter weight, and new styling features. One prototype is in endurance test. Design specifications are being reviewed to insure compatibility with our long range product development strategy.

Model 870/1100 Deer Gun (D. S. Findlay, A. A. Hugick,  
F. H. Smith)

Introduction in 1985 of a new deer barrel to replace the current offering has been initiated. This redesigned barrel in both models and in both 12 and 20 Gauge will feature a 21" barrel and a rear sight base capable of mounting a long eye relief scope with a variety of mounts. Drawings have been completed for estimating by Production and samples will be completed by September 30.

Model 870P Police Shotgun (A. A. Hugick)

Three Model 870 12 Gauge Police shotguns in the Research Test Lab for anti-jam design evaluation/endurance are at a fired round level of 15,000 rounds each and are scheduled for completion the week of August 21.

Model 870P shotgun disassembly and assembly with the proposed anti-jam latch slide appeared to be a major problem for the F.B.I. Academy. Shotgun action disassembly/assembly difficulties demonstrated at the August 11 Remington Arms - F.B.I. contact meeting in Quantico, Virginia may require a redesign.

Parker Double Barrel Shotgun (D. S. Findlay)

Reintroduction of the classic Parker side-by-side double barrel shotgun is being considered. One VH Grade 12 Gauge Parker has been completed and delivered to Marketing.

A partial set of drawings from Jesse Briley on a 20 Gauge Parker has been received. These drawings are undergoing engineering evaluation. Once the remaining drawings of the package have been received, they will be sent out for cost estimating by Process Engineering.

Model 700 Lightweight (F. E. Martin)

Transmittal and accuracy testing will be complete by September 15.

Initial accuracy results for .30-06 gave a four gun average of 1.69". Present specification is 3.5".

Four guns are being assembled for Marketing Field Testing. These are to be completed by September 8.

CURRENT PRODUCT DEVELOPMENT (J.W. Brooks)

Model Seven Lightweight (1984 Introduction) (D. E. Bullis)

Drawings for the aluminum floor plate cover and trigger guard have been completed and delivered to Purchasing. They have been sent to the vendor and he will be here August 25 to discuss dimensioning and tolerances to fit in with proposed Process Engineering manufacturing processes.

The N/C Shop has completed a dozen prototype trigger guards. They will have floor plate covers by September 6.

A program is being written to have stocks inletted for the above prototype trigger guards.

Sensitivity tests will be run with the new design in September.

Model 870/1100 Waterfowl (1985 Introduction) (P. Nasypany)

Five Model 870 shotguns will be completed by the end of September and design verification testing will be completed in October.

One prototype Model 1100 will be completed by the end of September. If testing is satisfactory, 25 models will be built and tested for design verification in October.

Low Price Model 870 12 Ga. (1984 Introduction) (T. J. Plunkett)

Preliminary parts list and drawings have been furnished to Process Engineering for cost estimates.

Marking drawings need completion and approval by Marketing. It will be called a Remington Mohawk 12.

Final transmittal will be completed in September.

Low Price Model 700 (1984 Introduction) (T. J. Plunkett)

Preliminary parts list and drawings will be furnished to Process Engineering by September 2 for cost estimates.

Marking drawings need completion and Marketing approval. It will be called a Mohawk 78.

Preliminary feeding tests of the .243 Win. caliber in the long action was unsuccessful and will be reviewed with Marketing.

Final transmittal will be made pending Marketing's decisions on the above.

MATERIALS AND PROCESS DEVELOPMENT (J. W. Bower)

Injection Molding-Firearms Components (K. C. Rowlands, M. J. Topolski,  
B. Panagian)

Pilot quantities of Model 700 magazine followers have been processed through the Production gallery and are in the Test Lab for Research function and endurance testing. Samples have been given to Marketing.

EDL has provided additional samples of Model 700 rear sight bases. Wilmington Shops designed and built the mold.

Model 700, etc. rear sight slides are being sintered to determine shrink rate. Mold alterations will follow.

Injection Molding-Commercial Applications (K. C. Rowlands, B. Panagian,  
M. Tasovac, J. A. Lawrence)

The mold for the West Co. part has been corrected for shrinkage and gating. Parts should be in sinter by August 26.

PZT powder has been received at CR&D. Mold build has begun. Sample parts are scheduled to be delivered to Sandia National Laboratories by October 15.

Cut Checkering Machine Development (R. J. Balaska, A. M. Makowski,  
E. R. Owens, B. Panagian)

The Bostomatic machine is installed, and development of the Model Four and Six stock is progressing. Checkering quality is as good as the current N/C machines. Repeatability from stock to stock is good. Minor software or fixture revisions are necessary to achieve uniform depth from side to side.

The Purchase Order has been issued for a CO.RE.MA. six spindle CNC machine for checkering fore-ends. Run off in Italy is expected in late December.

The latest cutters evaluated checkered the equivalent of 72 stocks before replacement. Production currently changes cutters every 75 stocks off the N/C machines.

Testing and Inspection (J. A. Lawrence, A. M. Makowski,  
B. Panagian)

The Work Request from EPL is in Ilion. The portion of the funding that was to come from Powder Metal Research has been withdrawn. Alternate sources of funding are being reviewed.

Four-Slide Development (R. H. Smith)

A Plant Order has been approved to purchase four-slide tooling for the Model 1100-870 trigger plate pin bushing.

PE&C has been requested to assign an engineer to begin learning the capabilities of the Four-Slide Machine.