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FIREARMS RESEARCH DIVISION

PROGRESS REPORT

NOVEMBER 1980

HIGHLIGHTS

Remington Arms Company, Inc

NEW PRODUCT DEVELOPMENT

Model 7400 / 7600 Centerfire Rifles

The Plant continues to experience problems with excessive feeding malfunctions in the M/7400 rifles. A task force of Plant and Research personnel has been formed to determine the cause and to implement solutions to the problem. Initial test results indicate that the malfunctions are due to a combination of problems with fabrication and assembly of component parts. On a visit to the vendor, Research personnel discovered a potential source of feeding malfunctions due to fabrication of the magazine boxes. A trial run of 100 revised boxes has been received and a test program has been initiated to determine effect of the change on malfunction rate. In addition, prototype boxes are being fabricated for tests with a new design incorporating a revised spring and follower geometry.

Model Four Limited Edition

Following evaluation of the first two etched and plated receivers from Aurum Etching, Marketing requested minor changes to the design. Two additional receivers are being etched and plated to the new design and are scheduled for delivery by mid-December.

XSG/XPG Shotgun

In laboratory test firings, the square wire action spring has exhibited a 1.5" set after 5,220 rounds, including 4,870 rounds of short magnums. The gun still exhibits good closing velocities, but the test has been delayed due to action bar failures. Total malfunction rate during the test was 0.9%. Tests with the new rear locking system have been initiated and components are being assembled for tests with the new front locking system. All components for the new feed system have been released to the Model Shop for fabrication.

Model 979 Seismic Gun

In recent cold weather tests by SSC at Wellsville, N.Y. all three guns in test failed to function after approximately three firings due to freezing of the inertia weight -- firing pin mechanism. Sluggish operation was also obtained in subsequent tests at Ilion to identify cause

Model 979 Seismic Gun (continued)

of the problem. Prototype inertia weights have been modified to provide a back up, manual retract mode. Modified parts were hand delivered to SSC by Research personnel and have functioned well in subsequent tests by SSC.

Bolt Action Carbine

Barrels are being fabricated and models will be built to reduce the weight of the rifle by approximately 12 oz.

Service Manuals

A partial Service Manual for the M/7400 centerfire rifle has been drafted covering items which differ significantly from the M/742 rifle. This draft could be issued as a supplement to the M/742 manual pending completion in mid - March of the full M/7400 manual.

CURRENT PRODUCT DEVELOPMENT

Model 700 Bolt Lock and Fire Control

Five bolt lock and corresponding fire control assemblies have been fabricated and are being prepared for testing of the new designs featuring separation of the bolt lock and trigger safety lever and blocked sear and trigger. Six additional bolt locks are being fabricated for use on the Bolt Action Carbine. Tests of the new designs have been delayed due to priority work on guns for the December Writer's Seminar.

Model 788 Safety

Samples of the new safety design have been tested with satisfactory results. Safe-on and -off forces remained constant after 20,000 cycles. Model drawings are being prepared for transmittal to Production.

Model 1100 Ducks Unlimited

All drawings for the Commemorative gun have been transmitted, but they did not include final design of the DU emblem and location of the rivet holes for attachment of the emblem. A bronze emblem blank has been received and testing will be completed by the first of December.

Model 1100 Ducks Unlimited (continued)

All drawings for the DU Special and for the DU Trade Gun have also been transmitted. Trade gun drawings did not include receiver art work which will be completed by December 12, 1980.

Model 1100 Piston and Piston Seals

Electroless nickel plated samples from several vendors have successfully passed salt spray tests and function tests in skeet guns. Endurance firing tests will be performed on other samples and cost estimates for plated parts have been requested from PE & C.

Model 1100 Link Breakage

Broken links returned at the Grand American Shoot this past summer appear to have failed by a fatigue mechanism. Fracture surfaces of 10 links were examined by DuPont - ETL personnel. All exhibited indications of crack initiation by fatigue (cyclic) loading. Redesign of the links to decrease operating stresses and possible use of shot peening are being evaluated.

PROCESS DEVELOPMENT

Auto-Drill Line

The southside of the line is completed and test runs have been made in the fully automatic mode. Plant personnel are being trained to operate the line. A Plant safety evaluation, conducted on the southside while in operation, revealed a few minor items for modification and those deficiencies have been corrected. No major deficiencies were identified. Work is continuing on the northside to correct problems with a clutch on the conveyor system and hydraulic flow control valves. A preliminary cost analysis, prepared by Research, indicates that the project will be completed within project authorization limits.

ASEA Manipulator

A micrometer table for precise adjustment of the LVDT Repositioning System has been received and components for mounting the LVDT's to the table are being fabricated. Installation and prove out of the system is scheduled for January 1981. The most recent economic analysis projects a \$61M per year savings and a ROI of 23%.

Laser Welding

ETL has laser welded some M/1100 slide blocks to action bars, but initial samples did not exhibit sufficient weld strength. Two XSG samples with good weld surface quality have been returned. Some subsequent machining operations are necessary on these parts before testing can begin. Additional components will be provided to ETL for further welding studies.

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