LIMITED DISTRIBUTION

ILION RESEARCH DIVISION

PROGRESS REPORT - HIGHLIGHTS

JANUARY 1983

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Remington Arms Company, Inc.

NEW PRODUCT DEVELOPMENT

Model 1100 Special Shotguns

Model Drawings have been transmitted to Production for the Model 1100 Special Field shotguns, except for the 20 Ga. stock and the two piece butt plate designs. Both of those items will be completed in February.

Components for thirty-five (35) sample guns for use by Market Field Force personnel are being fabricated. Those guns will be assembled by mid-February.

Model 870 Special Shotguns

Samples of the Model 870 Special Field shotgun are being assembled for review by Marketing personnel. Design Specifications are 75% complete and drawings are being prepared for preliminary economic analysis. Sample guns and Design Specifications will be completed by mid-February.

New Shotgun Development

Eight (8) styling samples of the new autoloading shotgun and one (1) sample of the new pump action shotgun have been completed and reviewed with Marketing personnel. Additional receiver styling modifications are being considered.

Four (4) Design Verification prototypes of the autoloading design are being assembled. Testing will begin by mid-February. This design features the rocker arm locking system, action spring forward around the magazine tube, and aluminum receiver.

Parker Shotgun

Arrangements are proceeding to complete one (1) VH Grade, 12 Gauge Parker in the 1st Quarter of 1983. One frame and barrel set has been machined to fit and will be returned to Larry DelGrego for further work.

For the long-term program, a 20 Gauge Parker modified by DelGrego is being considered. Design drawings and initial prototypes maybe produced by an external source (Jesse Briley). A meeting with Briley is being planned for the first week in February.

Model 7400/7600 Centerfire Rifles

Priority has been placed on completion of the Model 7400, .223 Caliber rifle design for mid-1983 introduction. New follower and magazine spring designs have reduced the malfunction rate to an acceptable level (0.5%). Model requirements include an aluminum receiver, four (4) shot magazine box, low lustre metal and wood finishes, 18½" barrel, and no checkering, grip cap, or white line spacers. A sample will be prepared for review at the February Operations Committee meeting. Preliminary drawings have been provided to Production for economic evaluation. If approved, complete drawings will be available for transmittal in February.

Bolt Action Rifle

The fourth model gun featuring a Bob Emmons stock will be completed by mid-February. That gun will include revised Model 700 metal work by Pete Grisel, including an extended tang and tang type safety. Preliminary Design of the new rifle to replace the Model 700 BDL will be completed in March.

CURRENT PRODUCT DEVELOPMENT

Model 870 Police Shotgun

Four (4) prototype slide and carrier assemblies featuring revisions required to eliminate the jammed shell malfunction were provided to Marketing and Sales personnel for demonstration at a Police Ordinance Show in Los Angeles, California at the end of January. Revisions include addition of a shell stop latch to the bottom of the slide and provision of additional clearance between the carrier and the slide. Results of live round tests in the laboratory and in the field indicate that these revisions should eliminate the jammed shell malfunction.

Model 870 Limited Edition

Revised artwork has been received from Marketing and new samples will be ordered the first week of February.

Model 870 12 Ga. Mag. 18" Full Choke Barrel Police Shotgun

Sample powder metal sight bases to correct the point of impact have been received. Barrels with the new sight base will be ready for test by the first week of February.

Model 700 BDL .223 Rem. Caliber

Trial and Pilot testing of this model was satisfactory.

Model 700 ADL Restyle

Prototype .223 Caliber no-bind followers have been received and will be tested this month. If satisfactory, a larger quantity will be ordered for extended testing.

Finishing of a master stock for digitizing to make a former has been started by the Custom Shop.

Model Seven Lightweight

Prototype .222 Caliber no-bind followers have been received and will be tested this month. If satisfactory, a larger quantity will be ordered for extended testing.

Production is assembling floor plate assemblies so that the latch has at least 50% engagement with the floor plate cover. A tolerance check is being made to improve tolerance stack ups where possible.

Safety buttons made from HD 1000 Powdered Metal alloy have been tested satisfactorily. This material will replace HD 2020. HD 1000 will give an improved black color.

MATERIALS AND PROCESS DEVELOPMENT

Injection Molding Metal and Ceramic Components

The first commercial order has been received. The West Company, Phoenixville, Pa., has placed an order for injection molded hobb forms to be made from Fe-2%Ni. West presently has this part made as an aluminum die casting.

Initial samples of M/700 magazine followers have been molded, processed through sintering and are being evaluated. The mold for M/700 rear sight bases is proceeding on schedule at Wilmington Shops, with a March completion expected.

Several materials and binder formulations have been molded by the Peltsman Process. Bill Phillips at ETL feels the distortion problems observed during debinderizing are caused by residual stresses left from stripping the mold. The die is being redesigned. Some test samples have been received at Remington for preliminary sintering tests.

Cut Checkering Machine Development

An Appropriation Request is circulating in Bridgeport.

Competitive quotes for the CNC portion of the system are due in Purchasing the week of February 7th.

A prototype machine for sanding and checkering fore-ends has been set up in the N/C Department and interfaced with an HP- 85 Computer. Quotes has been requested to fabricate a proposed floating z tool holder.

Form-Rolling

An Appropriation Request to purchase form-rolling equipment is circulating in Bridgeport.

Laser Applications

ETL has submitted a final report on the laser processing of gun components with the conclusions that:

- laser welding of shotgun slide block - action bar assemblies using a CO_2 laser, with strength comparable to conventional brazed assemblies, is feasible at rapid welding rates
- localized transformation hardening to produce wear surfaces in steel components is feasible
- initial results of laser welded free-machining steels using a double pass showed potential for improved weld integrity.

Updated economics will be requested. Additional testing in Ilion will be required.

Wear Resistant P/M Alloys

Various fractions of WC and TiC have been added to HD-1000 and HD-2108, to determine effect on wear resistance and mechanical

properties. Preliminary sintering experiments resulted in some of the samples melting prematurely at 2400°F.

Chrysler has requested a wear resistant material for an insert in an automobile application. 410 stainless steel powder has been modified with additions of Mo, Ni, and C. Initial mechanical property measurements look promising.