

ILION RESEARCH DIVISION
ANNUAL REPORT - 1976

FIREARMS DESIGN

Estimated 1976
\$ 1,383,000

Forecast 1977
\$ 1,415,000

The improvement program on the Model 1100 - 12 Ga. has continued. Design improvements to the operating handle detent system and fore end tube were completed and are now in production. Improvements to the chrome plated piston and piston seals are in progress.

The design of special trap Model 1100 - 28" and 34" barrels has been finalized. Models produced are currently being tested for point of impact.

The Model 1100 - 20 Gauge LightWeight is scheduled for 1977 announcement. Research design and engineering assistance has been provided to Production for endurance and pilot testing of model guns.

A development program on the New Generation Models 742-760 is continuing with model announcement scheduled for 1980. Model design drawings have been informally transmitted to Production for cost estimating. Twenty prototype models are being fabricated for design and endurance testing. Model testing is expected to be finished in 1976.

The Model 1100 Product Improvement Program was expanded to the New 1100A development program. The proposed model will incorporate new design features such as a screwed in magazine tube, action bar disconnect system, locking system, contoured port and barrel extension, one piece piston, new trigger, wider extractor and a new feed latch. Preliminary prototype model fabrication is scheduled for completion in December 1976.

Remington Arms Company, Inc.

FIREARMS DESIGN Continued

The design program for improving endurance life of the Model 1100 - 12 Gauge 3" Magnum and Target grade models is continuing. Two design models have been constructed and undergone preliminary testing. Design revisions to the feeding system are being made.

Design work on the Model 3200 Single Barrel Trap Gun has proceeded at a moderate rate. Redesign of the model was completed and three prototype guns were built for testing.

Approximately thirty-five design improvements on the Model 3200 Shotgun to reduce factory cost and improve performance have been made. The design improvements are in the process of being evaluated for production. Major improvements such as investment cast of bottom tang assembly which eliminates 47 machining and assembly operations at cost savings of \$2.65 per gun, hammerless ejector system at a saving of \$3.21 per gun, and redesign of butt pad at saving of \$.76 per gun are presently being considered.

The design program on the Model 700 - 8mm Remington Magnum, scheduled for 1977 announcement, has been finalized. Bore and chamber dimension drawings have been completed and transmitted to production. Six prototype models have been constructed and are ready for test.

A product improvement program on the Models 580 and 788 is continuing. Redesign of firing pin head has been completed and released to production. The new design allows for utilization of formed steel bar stock to replace unavailable powder metal material. Although the new design is more costly, increased strength and reliability are obtained.

FIREARMS DESIGN Continued

A development program for the Model 870 Trap improvements has been initiated. Design work on a recoil reduction system, an adjustable point of impact rib, and a pattern control device is in progress.

At request of Marketing a product improvement program on the Models 552 and 572 has been initiated. Cosmetic revisions to improve appearance as well as reduce factory cost are being considered. Three model guns were fabricated and are being reviewed with the Marketing Department.

TARGET AND TRAP

<u>Estimated 1976</u>	<u>Forecast 1977</u>
\$ 65,000	\$ 53,000

A new skeet trap was announced in July 1976. A design improvement and cost reduction program is continuing.

A development program for a new mechanical trap scheduled for midyear 1977 announcement is in progress. Design, fabrication and testing is expected to be completed in the second quarter of 1977.

PROCESS AND MATERIAL RESEARCH

<u>Estimated 1976</u>	<u>Forecast 1977</u>
\$ 115,000	\$ 198,000

A New Process Research and Application Group was organized for investigation of process techniques and applications to improve gun design and reduce cost. Currently under investigation are such new techniques and processes as electron beam welding, Shaw investment casting, laser beam welding/engraving, and molded polyurethane stock/fore ends.

PROCESS AND MATERIAL RESEARCH Continued

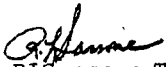
A development program to evaluate processing techniques for high volume firearms has been initiated. As a test vehicle for this new process program, a 12 Gauge shotgun model is being developed, which will incorporate die formed receiver halves, laser beam welded together, and the wood stock and fore end will be replaced with polyurethane molded parts. Other components are being designed to take advantage of more economical manufacturing processes. Du Pont's new nylon resin "Zytel ST" is being evaluated as replacement for some internal metal parts. An engineering prototype gun is scheduled to be complete the fourth quarter 1976.

The Research Numerical Control Model Shop has primarily provided model component fabrication support for experimental prototypes. Model components for New Generation 742-760, 1100A, 3200 Single Barrel Trap and Skeet Trap were fabricated. The shop has continued to furnish short-run product parts for the Production Department and special tooling, template-cams for the Tool Room. Also, assistance is being provided to P.E. & C. on programs for Production Richardson N/C Router.

The computer Aided Design facilities have continued to furnish firearms and test measurement support. Development of software programs for dry cycle machine were completed. Design programs have been developed to assist in the design of New Generation M/742-760 bolt, cam and bolt carrier. A special program to calculate the volume of irregular cylindrical shapes was developed and primarily was used by Bridgeport to measure clay target molds. Also, program assistance

PROCESS AND MATERIAL RESEARCH Continued

was given to Ilion Management Task Force. A machine group analysis program was developed for use by Industrial Engineering to reduce manual work required in determining optimum machine groups.


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Ilion Research Division
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