

## ILION RESEARCH DIVISION

## ANNUAL REPORT - 1977

ARMS DESIGN1977 Estimated

\$ 1,449,000

1978 Forecast

\$ 1,864,000

The Model 1100 improvement program is continuing. Design revisions to interlock the left connector and disconnecter have been completed and are undergoing design test. A carrier latch retainer already in use in the small bore guns is being tried in the 12 Ga. 3 inch magnum to improve feeding reliability during overhead pass shooting. Attempts to make the gas actuating system rust free have, up to this time, been unsuccessful.

Design work on the M/1100A continues. Research objectives are to produce a new 1100, with cut checkering and improved finishes, that can remain competitively priced. An engineering prototype, the 1100A2, has been built and has 84 parts as compared to 110 parts in the current product. While this represents a significant potential for minimum cost, intensive testing must be done to prove that it will be realized. Major differences from the present 1100 include a completely redesigned locking system, action return mechanism, feed latches, receiver and gas piston. In addition to fewer parts, the present engineering prototype weighs three quarters of a pound less than the M/1100. Realistically, the final design should fall somewhere between these two weights. Testing has started and has progressed to the point of establishing actuating system orifice sizes.

For 1978 announcement, the large frame M/1100 will be offered with different pressed checkering patterns and new receiver roll marking. In addition, work was completed on the LT20 slug gun and extra slug barrels.

Development work on the Model 870 Competition Trap gun is continuing. New features such as adjustable point of impact, pattern control device, recoil reduction system and cut checkering are being implemented. Engineering prototypes have been built and are in design test.

For 1978 announcement, work was completed on a new cut checkering pattern for the M/870 TC, and as with the M/1100, a 20 Ga. slug gun in the light weight version was developed with extra barrels.

The design of the Model 700 Classic rifle, scheduled for 1978 announcement, has been completed. This version of the M/700 features cut checkering, low gloss vinyl finish, and restyled stock.

A program has been initiated to add a carbine to the bolt action line. Our objectives here are to reach the segment of the market that wants a light, easy to carry deer rifle that can be chambered for more potent cartridges than the Marlin and Winchester lever actions. It is planned to redesign and upgrade the Mohawk 600 rifle. New styling and features are being considered and the design of several prototypes is in progress.

The Models 700-600 fire control improvement program is continuing. Improvements to the fire control assembly and safety have been designed and models are being built for test.

Development work on the New Generation 742-760 centerfire rifle is continuing. Redesign of the firing pin system to provide 100% positive block to the pin during lockup as well as increase endurance life has been completed. Initial design transmittal has been made to production, and trial and pilot work is in progress.

Model guns are being fabricated and assembled to evaluate two additional calibers, the .270 Winchester and the .25-06. The possibility of adding the .223 caliber to the New Generation rifle is also under investigation.

The product improvement and cost reduction program on the Models 552 and 572 has been completed for model announcement in 1978. Changes to the stock and barrel to improve appearance have been made.

A program to upgrade the Nylon 66 has been initiated. Various color combinations have been evaluated and it is anticipated that a new variety will be ready for 1978 announcement. Design work on a new scope mount and bolt hold-open device is in progress with a scheduled 1979 announcement.

An investigation program to determine long term Remington options in the 22 caliber autoloading market is in progress. If the investigation proves successful a development program will be started.

#### PROCESS AND MATERIAL RESEARCH

1977 Estimated  
\$ 150,000

1978 Forecast  
\$ 312,000

Early this year the Process Applications Group was deactivated in Research in order to accelerate the program on the New Generation Rifles. Plans are being made to re-establish this activity as soon as progress on the New Generation program permits. The goal is early in the fourth quarter of this year.

The numerical control Model Shop has continued to provide engineering prototype component fabrication support. Prototype parts for the New Generation 742-760, the Model 1100A, the Model 552 and the new Mechanical Trap were made. The N/C shop has continued to furnish short run component parts for production and special tooling for the tool room and production operations. In addition, trial and

pilot lot machining operations on the New Generation 742-750 breech bolt and barrel extension are in progress.

The Research computer section continued to support the firearms design, N/C and Test sections. Computer support for production N/C checkering and engraving and the solution of tool design problems was provided. Assistance was given to production in implementing the 3200 job shop scheduling on the GE Mark III network, and a special program for maintaining a skill bank file on all production employees was developed. For Industrial Engineering, software programs were developed for M/3200 inventory control, for performing cash flow analysis and for calculating return on investment. Comparator charts for tooling inspection use by Lonoke Engineering were completed.

TARGETS AND TRAPS

1977 Estimated  
\$ 86,000

1978 Forecast  
\$ -0-

The development and design of a new mechanical trap for 1978 announcement has been completed. Field tests have been successful with only minor problems reported.

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