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REMINGTON ARMS COMPANY, INC.
FIREARMS MODERNIZATION DIVISION
QUARTERLY PROGRESS REPORT
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Receiver Flexible Manufacturing System

Representatives from Snyder Machine Company (a division of Giddings and Lewis) visited Wilmington, December 21st to present their detailed quotation for the four spindle CNC machining center. A \$25,000 purchase order was issued to initiate engineering and finalize a construction schedule. A second meeting will be held in February to review the proposal and schedule before releasing a purchase order for the prototype machine.

Machining tests of M/870 receivers were conducted in Wilmington shops earlier this month on a K & T horizontal spindle NC machine to prove out fixture and work holding concepts, tooling, cutting cycle, and machine monitoring techniques.

Preliminary results indicate:

- Fixture mandrel and clamping concepts tested favorably
- Part holding techniques need additional development/redesign for production use
- Most of the tooling performed satisfactorily
- Current cutting cycle is approximately twice that required for production

Gary Foggin, EDL has been assigned responsibility for tool and program development. Remington engineering and cutter grind personnel will provide assistance as necessary to develop optimum cutting cycles.

A meeting was held on December 22 to review potential benefits of a flexible manufacturing system relative to R & D's new product development program. Three new models currently under consideration for 1986-87 introduction will require receiver design changes. Investment cost estimates to produce these receivers as presently conceived using an FMS will be made by Firearms Modernization for comparison to traditional type equipment.

Small Parts Flexible Manufacturing System

EDL has been asked to assist in the design and fabrication of prototype fixturing for shotgun breech bolts. Work is expected to begin by February 1 and completed in early April. The prototype fixturing will be used in machining and material handling investigations. Results of these investigations will help to develop final design of breech bolt machining fixtures.

Preliminary machining tests are planned to begin in the R & D NC lab by February 1. All cutting tools, fixtures, and parts have been delivered to the lab for the tests. The information generated by these tests will be used in final fixture design, cutting tool specifications, machine specifications, and system definition.

Wood Finishing Automation

The DeVilbiss rotary atomizers were installed on the electrostatic sprayline on 1/17/83. Preliminary tests resulted in approximately a 50% reduction in finish usage. Further trial and pilot production will be necessary to obtain optimum results for finish savings and quality. The acquisition of spare parts and minor installation changes are currently being carried out to aid production.

Once normal production is underway, future work will focus to develop a top coat electrostatic finishing process to replace the current hand spraying operations.

Ultra Violet Finishing

Sample stocks have been sent to IST (manufacturers of the ultra violet curing booths) and Lilly Industrial Coatings (manufacturers of U.V. finishes) for further testing and evaluation. IST is investigating the possible use of the process for repairs. Lilly will try to eliminate the finish related problems which were uncovered

during testing in November. The project direction will be determined upon test completion.

Stock Process Machines - Auto Loading

Robot loading was determined to be the most technically feasible solution for auto loading the short stock process machines. EDL is investigating the selection of an optimum robot. Work is underway to develop an area layout which will be used to determine the scope of work and re-evaluate the project economics.

CNC Secondary Wood Machining

The Heian CNC router is scheduled to be shipped from Japan on 1/20 with delivery in a New Jersey port expected on 2/23/83. Minor clamping redesign and construction for the fixture will be carried out by EDL and Wilmington shops. The M/7 will be the first production stock run on the router and development of the control tape is underway.

Robot Stock Sanding

The R & D ASEA robot will be used to investigate the feasibility of robot sanding stocks. A testing gripper has been built and the area is being set up for testing.

Serial Number Recording System - Phase II

The part II appropriations request of the Computerized Inventory and Shipping Control System has been recently approved.

The purchase requisitions for the required hardware will be issued in February.

The system installation is currently scheduled for the third quarter 1983, with full operation expected by year end.

Office Computer System

The desk top computer system proposed for the Firearms Modernization offices has been recently approved and ordered. (P.O. 82765 - \$7M).

In addition to having the ability to handle the word processing needs of the group, this Digital Equipment DEC Mate II system has the additional advantage of being able to function as a VT-100 terminal and as such, provide the means of accessing existing engineering software available at Wilmington locations.

The system is scheduled for installation in the second quarter of 1963.

