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

The prototype project and program "white paper" have been completed and submitted to management for review. Authorization is expected by May 1.

A revised machining program for M/870 Receivers using higher feeds and speeds, improved cutting sequence and several new tools was recently tested at Wilmington Shops. Initial results indicate cycle times needed for the FMS are obtainable, however, machined part tolerance and tool life need to be verified. Parts produced from this test will be measured by EDL. Tool life tests will be made at Remington. Development of an optimum cutting tool program is being conducted jointly between EDL and Remington.

Tom Bentley, Du Pont Material Handling Consultant is presently investigating methods of automatically conveying part fixtures and tool magazines for the flexible manufacturing system. A meeting is tentatively scheduled for April 27th at Ilion to review potential candidates and requirements.

EDL has requested quotes for a coordinate measuring machine for receiver inspection from Brown and Sharp, DEA and Bendix Corporation. A demonstration on the receiver is tentatively scheduled for May 11th at Brown and Sharp.

A final quote from Snyder Corporation for the four spindle CNC machining center is expected to be received at EDL by April 29th.

GFM Automation

The majority of the detailed design is complete. All components, except spares, are scheduled to be ordered by mid May.

During the recent scheduled maintenance overhaul of the #4 GFM, instrumentation for the automated system was installed. This equipment will provide information concerning final system operation and should minimize production down time at start-up. Instrument modifications were also completed to simplify the existing GFM controls for increased reliability.

Remington is currently investigating floor loading requirements for the robot with the ESD consultants. Floor vibration measurements will be taken in May and sent to ESD for analysis.

Flexible Manufacturing System Of Small Components

Recent machining tests have been performed in Ilion on shotgun breech bolt blanks. The following conclusions were developed:

- The "A" loading fixture concept was proven rigid and will adequately perform in the final production system.
- Machine cycle times were 50% better than originally estimated and should significantly affect the capital requirements.

EDL is continuing to work on prototype fixturing. The "A" and "B" loading fixtures are scheduled to be complete by June 1. Comprehensive machining and robotic material handling tests are scheduled in June.

Wood Finishing Automation

DeVilbiss service representatives were on plant on 4/15/83 to inspect the Rotary Atomizer control system. It was discovered that compressor oil had bypassed existing filters in the air lines and entered the controls. Plant Engineering was contacted and a new filtration system for the electrostatic spray system is

being installed. New finishing tests will be scheduled after the oil is removed from the pneumatic control lines.

CNC Secondary Wood Machining

Machine backlash problems and minor fixture problems delayed the acceptance testing of the Heian CNC router. These problems have been corrected and acceptance is expected by 4/29/83. The cutting sequence on the M/7 program must be altered to optimize the cycle time before production can begin. In addition, the machine requires a sound reduction enclosure and additional guarding to satisfy Remington's safety concerns. The machine should be ready for limited production of the M/7 LWT stock in May.

Flexible Assembly System For Small Parts

EDL has completed and tested a prototype assembly station for shotgun breech bolts. This system is scheduled for demonstration to Remington management on May 6.

Additional assemblies will be prototyped in II Q and III Q'83 for technical and economic evaluation.

An appropriation request for the first assembly system will be prepared for authorization in the IV Q'83.

Serial Number Recording System - Phase II

Purchasing has requested a requote from Computer Identics (CI) based on a newly compiled performance specification package. CI is expected to respond within two weeks. Purchase orders will then be issued to both Computer Identics and Digital Equipment Corporation.

System installation is planned for October with full operation expected by January 1, 1984.