

ILION RESEARCH DIVISION  
MONTHLY PROGRESS REPORT

SEPTEMBER 1979

MODEL XSG AUTOLOADING SHOTGUN

Bolt velocity testing of an XSG shotgun with an alternate design piston and reduced orifice size shows more controllable velocities between light and heavy loads. This is accomplished at a lower bolt velocity, subjecting the guns' reciprocating parts to lower stress loads.

A two piece action bar assembly has been designed and the slide block assembly will be made out of a stronger material (8620) instead of C-1118.

MODEL 1100 LT-20 3" SPECIAL SLUG GUN

The barrel assemblies have been completed, scopes attached and are ready for testing.

NYLON 66 IMPROVEMENTS

Bolt Lock Operations Committee approved transmittal of design on 9-13-79. Transmittal of drawings to Plant has been started.

Yellow Jacket Marketing has reviewed the samples with decision to table the project until further notice.

Disconnectors Twenty one (21) current production and experimental parts are ready for strength test. P.E. & C. is in the process of establishing a pull test to determine if the experimental disconnectors are stronger at the 90° bend than the current parts. Samples to be tested are current production parts made from different material and current production parts with standard material, modified in problem area.

*Remington Arms Company, Inc.*

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MODEL 5500

No change in status.

75th ANNIVERSARY LIMITED EDITION

Drawings have been completed. Five (5) receivers are in process for Aurum Etching. Sample stocks and foreends are being made for evaluation by Marketing.

MODEL 7400 - 7600

The 50 shell heads (30-06) were turned over to the Plant for evaluation and trial use for determining best assembly methods. The Plant has ordered a quantity of 270 - 7mm-Exp.Rem. and 6mm for use in rifles to be produced in Trial and Pilot. These parts are still prototypes; i.e., no vendor has been selected as yet.

Small caliber (6mm, 243, 308) testing with new followers and a heavier spring should commence the week of October 1st. Heavy wall boxes for this test have been received and are ready for processing in the Plant.

An order has been placed with Sid Bell for five (5) prototype masters of pewter inserts of a design to be Remington's exclusively. Due to the large number of Sid Bell pewter pieces having basically the same designs which are being used in wide applications by various manufacturers (knives, jewelry, and one known custom grip cap manufacturer) it was the consensus that Remington should have an exclusive design for its 7400 - 7600 rifles. Execution of the master designs should take about 3-4 weeks.

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BOLT ACTION FIRE CONTROL

Bolt Lock Parts for one bolt lock have been received from the Model Shop and a sample has been assembled. The second model will be assembled next week.

Fire Control The initial detailing of one system is about 50% complete. The second system is detailed approximately 30% with redesign of the housing in process.

21mm SEISMIC GUN

The breech blocks and all component parts have been made and will be assembled by the first week of October. Immediately following assembly, these breech blocks will be fitted, proofed and test fired. The guns will be ready to ship by October 8, 1979.

MODEL 700 - 7mm Mauser (7x57) CALIBER

This caliber will be available for trial and pilot testing by Research next month with the press formed stocks; however, Marketing has decided not to use this caliber at this time. If the stock is satisfactory they will use another caliber, possibly the 30-06. Marketing wants the 7mm Mauser test completed so that it will be available for future use.

MODEL 788 - 7mm-08 CALIBER

Rifles were shot with the first run of Research test ammunition with satisfactory function. Accuracy will be shot with factory ammunition when available.

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BOLT ACTION CARBINE

Marketing has seen the unfinished stock and feels it is what they want. A latch for the new steel floor plate will be finished the second week of October. A completely finished stock and action will be ready by the end of October to show to Marketing.

MODEL 870 COMPETITION TRAP SHOTGUN

The guns returned from the Grand American Trap Shoot were tested, and piston velocities taken were satisfactory. When the piston was depressed on one gun with a rod, it would return sluggishly. Tipping the buffer to allow air to enter behind the piston corrected the problem. Holes were drilled in all buffers and bolt velocities taken. Return piston velocities were decreased; however, operation of the gun is satisfactory. One gun is being loaned out to shooters at the Ilion Fish & Game Club, and another is being sent to Bridgeport for loan to shooters in that area.

Work is being done to see if a stronger return spring can be used to bring the return velocity back up to the original value before putting in the vent holes for improved cycle time.

Hammers and sears to be finished by Research for the Trial and Pilot guns are in the Model Shop.

XP-100 PISTOL in 7mm Rem. CALIBER

Two stocks are in the Test Lab, one with a powder metal escutcheon counterbored so that a longer screw is required to reach the bottom support area. The other stock has a wrought metal escutcheon. In tensile testing of these parts, the screw broke. They will now be tested in stocks using a pistol with a 308 caliber chamber.

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OTHER WORK - N/C - CAD

Model 870 Competition Trap Fore End Shaper Fixture Cams Assembly of thirteen cams and fixtures has been completed and released to production.

M/788 Master Stock N/C machining of the master stock has been completed and formers are being fabricated.

M/7400 ADL Fore End Press Checkering Dies N/C programs for machining the border have been debugged and a checkering die machined.

M/7400 - M/7600 BDL Master Stock N/C program for rough profiling and forming end area has been completed and program for finish profiling operation is being debugged.

M/700 Rivetless Extractor Bolt Head Machining of rivetless extractor cut in the bolt head is continuing. Approximately 4,000 bolt heads have been machined.

Video Pattern Recognition System Investigation of a video pattern recognition system to analyze shotgun pattern is continuing. Honeywell is continuing with their evaluation to determine if additional hardware is required to interface a video system to our computer. Other sources of equipment also are being investigated.

Dry Cycle Monitoring System Computer monitoring of the M/700 Safety has resumed. Approximately 12 safeties have been tested. Each safety has been dry cycled 10,000 rounds with computer monitoring each cycle to determine if

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OTHER WORK - N/C - CAD Continued

failure or successful testing has occurred. The computer would automatically shut down the dry cycle equipment and print a message indicating test failure or completion. Investigation to determine what additional hardware equipment and programs are necessary for monitoring other dry cycle equipment is in progress.

Comparator Charts for Lonoke Programming of 42 comparator charts for Lonoke has been completed and 30 charts forwarded to McAuto for plotting. The additional 12 charts are scheduled to be shipped October 1, 1979.

Calcomp Replacement Plotter The software for the replacement plotter has been received and conversion to our computer system started. Delivery of the plotter is expected in November and installation of additional computer hardware to drive the new plotter is scheduled to be completed December 15, 1979. The system is scheduled to be operational by January 1980.

Statistical Evaluation of Designs In 1970 a proposal was made by Connecticut Scientific Center for a system to perform statistical evaluation of firearms designs. Attempts to locate this firm revealed that they are no longer in business. A copy of this proposal was also sent to McAuto for evaluation. Their reply indicated this type of work could be done on this system; however, they do not feel it is an economical approach to this problem. Investigation is continuing into other sources for doing this work.

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PROCESS RESEARCH

Auto-Drill Line A visit will be made to Albion in Detroit during the week of October 1. to review the line and obtain a firm runoff date. At this point it appears that runoff will be in November and installation in Ilion in December.

ASEA Manipulator Latest version of the M/742 and M/760 receiver polishing program resulted in minimal receiver panel rippling, no dubbing on the leading edge of both panels and continued excellent quality on the top radius. Parts for a repositioning system have been received and will be installed in October.

Divine polishing jacks were completed and are ready for delivery.

Allen Tool quote on the part conveyor is expected by October 1st.

Integral Ejectors Testing of M/1100 LT-20 Ga. and LT-20 Ga. Magnum barrels has begun. One of the magnum barrels has fired 10,000 rounds with no ejection problems and negligible wear of the ejection surface.

Testing of M/1100 - 16 Ga. barrels will begin next week.

The hydraulic press, to be used for full production of integral ejectors in M/1100 - 12 Ga. barrels, requires some minor repairs before trial barrels can be produced. This should be completed next week. Full production will not begin until gages to check the position and height of the ejector have been built. This will take approximately 8 weeks.

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PROCESS RESEARCH Continued

Rivetless Extractors Production tooling to coin extractor anti-rotation

projections into the following bolt heads is being built in the Model Shop:

M/700 Mag.	M/700 L.H. Mag.
M/700 L.H. Reg.	M/788

Two (2) M/7400 bolts with extractor anti-rotation projections have been tested. The one with the deepest projection was judged to be the most satisfactory. Test Lab approval is expected shortly for this design to replace the anti-rotation pin configuration which is more costly to produce.

Four (4) endurance tests of rivetless extractors in M/7400 - 270 Cal. rifles have been conducted. This caliber is considered to be the most severe test for an extractor. Average life for the rivetless extractors was 1727 rounds, with a low of 1594 rounds. In comparison, four (4) prior tests of the current riveted extractors in M/740 - 270 Cal. rifles gave an average life of 1075 rounds, with a low of 426 rounds.

Four-Slide Machine The second draft of a project is being written to purchase a four-slide machine and support equipment which includes an N/C controlled "wire-cut" electrical discharge machine. One of the latter was inspected by Remington personnel at a recent tool show.

A three day workshop was completed on "Practical Die Design". This will enable us to gain expertise in designing tooling for the four-slide machine.

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NEW PRODUCT DIAL SYSTEMS

LINE	DESCRIPTION	UNIT	QTY	PRICE	TOTAL	DATE	STATUS	REMARKS
1.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
2.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
3.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
4.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
5.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
6.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	

SERVICES

7.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
8.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	

IMPROVEMENTS

9.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
10.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
11.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
12.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	
13.	NEW PRODUCT DIAL SYSTEM	740	1	1.00	1.00	DEC 1978	COMPLETE	

