

File

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REMINGTON ARMS COMPANY, INC.

NEW PRODUCTS RESEARCH

MONTHLY PROGRESS REPORT -- AUGUST, 1984

FIREARMS RESEARCH

SHOTGUN PRODUCT DEVELOPMENT

- Model 1100 Functional Improvements

Gas system development is continuing for the friction brake and elastomer seal designs. Sensitivity testing (lubrication, heat, cold) is in progress. Testing of a five gun sample of each design will be complete by the end of August.

- Model 870 Restyle - 12 Gauge

Research evaluation of Production's trial and pilot guns has been completed with satisfactory results. Production change-over to this model is held, pending Marketing's decision on final specifications.

The flexi-tab carrier, is now specified for all law enforcement guns. A schedule on when to introduce flexi-tab on all M/870's has not been established.

- Model 1100 Restyle - 12 Gauge

Specifications for this item are unclear due to the confusion on the M/870 Restyle. Introduction had been planned for 1986. The purchase of cut checkering equipment is the critical path item. Production may purchase that equipment on a separate project.

- Model 870 Restyle - 20, 28, 410 Gauges

This item, also scheduled for 1986 introduction, is held pending resolution of the M/870 - 12 Gauge specifications.

- Choke Tube Development

Testing of the Remington design should be complete by September 1. Purchasing has requested quotes from potential vendors.

- New Concept Shotgun

The product development team is meeting twice a week to evaluate concepts for action systems, locking systems, extraction/ejection, feeding systems, and fire controls and to establish overall objectives and specifications.

A draft of the Research Plan is 90% complete.

Research Department

August 1984

RIFLE PRODUCT DEVELOPMENT

- New Bolt Action Rifle

An alternate side-tang bolt lock design is nearly complete. Feedback regarding the legal implications of this design has been requested.

Three-dimensional modeling of critical components on the CV system has started. The complete rifle is expected to be on the system before transmittal.

Marketing has provided initial caliber volume and pricing estimates. Research cost estimates for the preferred design should be complete by the end of August.

AMMUNITION RESEARCH

GENERAL

- Research Consolidation

Research consolidation continues within budget and on schedule. Two full trailers containing furniture and equipment have been transferred from Bridgeport to Ilion and Plant Engineering has been advised of all transfers to assist in updating asset lists.

SHOTSHELL PRODUCTS

- Rotary Cam

- 12 Ga. 2-3/4"

Testing of smooth target bodies with a slightly thinner taper was completed on schedule. Severe function & casualty results were superior to PTL control. Reloading life both in severe and standard reloads was slightly better than in previous R.C. samples due to the improved wad fit of all major component wads. 135,000 blue target bodies were run on the production machine without any problems. These bodies will be shipped to Lonoke to be assembled and loaded with the new RTL wad and R209 primer.

Research Department

August 1984

SHOTSHELL PRODUCTS - Contd.

- Rotary Cam

- 28 Gauge

- Tool trim-in for three stations on the production body former was conducted. A total of 56,000 bodies was made. Quantities on stations 2 and 3 were much smaller because of a feed and heatset problem.

- Finished product is currently being characterized, hand headed and loaded for evaluation.

- .410 Bore

- Product from the recently completed experimental run on the research body former has been tested in non-standard guns and was at least equivalent to control. Tooling for the production body former being fabricated in-house has been completed. A small percentage of tools being made by outside vendors are due the week of August 31st.

- "Premier" Shotshell

- A test program to evaluate the effects of various components and machine loading variability on interior ballistics in the 1-7/8 oz. has been outlined and is underway. Observations to date are shown below:

- The RCLV body increases R.T. pressures ~ 1900 psi when directly compared to the Federal shell.
 - A thin wall SP body with a plastic basewad yields similar ballistics at all temps, when compared to the Federal shell.
 - Federal's powder is in the same quickness range as HM80 or 8168, not as slow as HM90.
 - Both Remington buffers, Gulf and Soltex increase R.T. pressures ~ 1500 psi over Federal and Winchester buffers.

- Designed experiments have confirmed predicted maximum pressures of machine loaded product should be below 1500 psi regardless of storage conditions if the variation of powder (± 1.5 gr), buffer (± 2.0 gr) and shot (± 25 gr) charges are controlled within reasonable limits as shown.

Research Department

August 1984

SHOTSHELL PRODUCTS - Contd.

- "Premier" Shotshell - Contd.

Analysis of past runs of 1-7/8 oz. "Premier" and competitive products indicates that current loader performance is significantly poorer than the competitions and that variations are outside these limits for buffer and shot.

- Remington Target Loads

10M new 12 Ga. RTL wads with minimum shot pouch flare for ease of factory loading have been injection molded in Bridgeport Semi-works equipment and sent to Lonoke for bowl feeding tests.

Blue Rotary Cam smooth bodies will be assembled, headed and primed at Lonoke with the new #209 primer in September. An experimental loading run with the new wads will be made at Lonoke as soon as schedules permit.

RTL field tests are planned in early 1985 and an additional 100M RTL wads will be required. The wads are being produced in Bridgeport Semi-works molding equipment. A back-up set of hardened mold tooling is presently being fabricated for this commitment.

- ABC Primer

The design of modified anvil pyramid discs was completed and a purchase order placed. This modification was done to bring the anvil point height up to the mean specification. Delivery is expected in mid-September.

- Brass Plated Strip Steel

The 534 lb. sample of brass plated 12 ga. high base steel strip from Thomas Steel has been processed through cupping, half-heading, and burnish and inhibit. A small sample of approximately 5,000 cups have also been assembled at AH&P but these cups were found to have excessive standard wax lube applied. They will be washed and relubed for another run through AH&P. A second sample lubed with Oakite 98, currently used on our brass 12 ga. target cups, will also be run. Industrial Engineering is presently working up an economic evaluation for the use of this strip.

Research Department

August 1984

SHOTSHELL PRODUCTS - Contd.

- Steel Shot

20 Ga. 15/16 oz.

A previous sample of 15/16 oz. payload shot containers molded by an outside vendor suffered 100% casualties when test fired due to a thinner than specified bridge section. A more recent sample has the correct bridge thickness but is still unacceptable because of turned-in fin distortion. The vendor has been notified and will attempt to rectify the condition by modifying the molding cycle.

- Rifled Slugs

12 Ga. 2-3/4" 1-1/4 oz.

Long term storage tests are complete with no significant fluctuations in pressure or velocity observed. Technical data for the above load has been given to Lonoke. Slugs have not been swaged for an experimental run due to production scheduling conflicts.

20 Ga. 2-3/4" 3/4 oz.

Long term storage test results showed several rounds above 16,000 psi after four weeks of 150°F storage. Load development will continue as equipment is moved from Bridgeport.

REFAS

Product Development Services has approved an agreement with Remington on the REFAS program and a joint kick-off meeting is scheduled for August 28th.

CENTERFIRE PRODUCTS

- "Premier" Centerfire
Bullet Performance

Bullet jacket draw punches for the .30 cal. 180 gr. secant ogive "Premier" bullet have been designed to improve mush by thinning the mouth. They are expected to be fabricated by October 1, 1984. Also, nose cut dies to improve mush for the above bullet have been designed. Quotes are being obtained from outside vendors due to our inability to fabricate these in the model shop. Dies for a .22 cal. 55 gr. "Premier" bullet are being designed.

Research Department

August 1984

CENTERFIRE PRODUCTS - Contd.

- "Premier" Centerfire

Case Polishing

A plant experimental run has been scheduled for the week of September 10. The test objectives were received from F. Schmidt on August 21 and a meeting was scheduled August 24 to wrap up final details. The chemicals from R.H. Miller have not been received but are expected by September 1, 1984. The chemicals from Shipley were received August 22.

STATUS OF PPE PLAN FOR SAWS PROJECT

The plan for accomplishing the objectives of the PPE has been outlined in draft form. Estimates of manpower, equipment, facilities and outside resources have been made and will be submitted to Industrial Engineering for formal estimation. Approximately 30% of the written draft is completed. The final draft is scheduled for submission to Process Engineering by September 6th.

WHColeman:js

Research Department

August 1984

NEW PRODUCTS RESEARCH

PERSONNEL

REMINGTON ROLL

	<u>Actual</u> <u>7/31/84</u>	<u>Actual</u> <u>8/31/84</u>	<u>Forecast</u> <u>12/31/84</u>
<u>Exempt</u>			
Ammunition Research	9	9	8
Firearms Research	<u>27</u>	<u>27</u>	<u>31</u>
Total Exempt	36	36	39
 <u>Non/Exempt</u>			
Ammunition Research	7	7	6
Firearms Research	<u>12</u>	<u>12</u>	<u>12</u>
Total Non/Exempt	19	19	18
 <u>Wage Roll</u>			
Firearms Research	<u>16</u>	<u>16</u>	<u>16</u>
Total Wage Roll	16	16	16
 Total New Products	71	71	73

Research Department

August 1984

RESEARCH PERSONNEL AS OF AUGUST 31, 1984

ILION - FIREARMS NEW PRODUCTS RESEARCH

Exempt <u>27</u>	Non/Exempt <u>12</u>	Wage Roll <u>16</u>
Balaska, Robert J.	Eskoff, Sophie	Baggetta, Joseph A.
Bauman, Thomas G.	Jones, Raymond A.	Beader, Robert W.
Bower, James W.	Martin, James S., Jr.	Bedworth, Gary R.
Calkins, Kevin L.	Pickett, Wm., F.	Butler, Richard G.
Coleman, Wm., H., II	Saunders, Susan P.	Fiorentino, Dominick J.
Curry, Wm.	Schuster, Joyce M.	Harter, James D.
Findlay, David S.	Smith, Floyd H.	Howe, Robert W.
Franz, Scott R.	Smithson, Ronald	Jennings, Dale E.
Hand, Charles	Stephens, Charles	Kozakowski, Robert J.
Hennings, James H.	Supry, Fred	Paslak, Wm., F.
Hugick, Adam H.	Urtz, Donald	Sohns, Wm., A.
Hutton, James C.	Weaver, Harold E.	Storne, Ramon
Kast, Jack L.		Truax, Irving, E.
Lawrence, Jeffrey A.		Williams, Clifford
Martin, Fred E.		Williams, Donald
Murphy, Randall A.		Williams, Ronald
Nightingale, Richard E.		
Plunkett, Thomas J.		
Powers, Thomas P.		
Rankins, Edwin D.		
Rowlands, Kenneth		
Sanzo, Robert J.		
Sassone, Richard L.		
Saunders, Eugene L.		
Smith, Robert		
Snedeker, James R.		
Yetter, Edward W., Jr.		

TOTAL ILION PERSONNEL - 55

RESEARCH PERSONNEL AS OF AUGUST 31, 1984

AMMUNITION NEW PRODUCTS RESEARCH

Exempt 9 Non/Exempt 7 Wage Roll

Cole, Wm., T. (Ilion)
desJardins, CF (Ilion)
Dwyer, John M.
Garrett, Thelma B.
McDonald A. Daniel
Peterkin, Vinton A.
Simpson, Wm., R.
Sroka, Leon R. (Lonoke)
Tomek, Warren L.

Alexander, Bruce R.
Buccitti, Dominick C.
Champine, Barry M.
Frauenberger, Marion O.
Greene, Jeffrey R.
Raimundo, John A.
Suhy, Frederick A.

TOTAL AMMUNITION PERSONNEL: