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REMINGTON ARMS COMPANY, INC.

NEW PRODUCTS RESEARCH

MONTHLY PROGRESS REPORT - JANUARY, 1985

MASTER

Firearms ResearchSHOTGUN PRODUCT DEVELOPMENTo Model 1100 Functional Improvements

Pressure vent-leaf springs, for the compensating gas system, were exceeding the yield strength with the initial 1095 steel selection. New springs have been formed in the Model Shop from 6150 steel. Testing should begin by January 26. Additional 6150 springs are being formed and shotpeened by a spring manufacturer. They should be ready for testing by February 1. Age hardened 6150 steel should yield tensile and yield strengths 1.5 - 2 times higher.

Testing is in progress on a twenty gun sample containing stainless steel magazine tubes, thicker extractors, two-piece firing pin springs, new magazine cap detents, and strengthened web carriers.

o Model 1100 Restyle - 12 Ga.

Drawings are being revised to include an increased barrel wall contour across the entire 12 ga. line to facilitate Production's work flow, incorporate the stainless steel magazine tube across the Model 1100 line (excluding the Sports 12 auto), and incorporate the new magazine cap detent system for 1986.

o Model 870 Restyle - 20, 28, & .410 Ga.

Marketing, Production, and Research have agreed to delay this program until 1987 and redirect resources to expedite the Model 1100 gas compensating system.

RIFLE PRODUCT DEVELOPMENTo New Bolt Action Rifle

Prototype short action bolts are being assembled. All other components are available. Testing will begin by January 28. Long action bolts are expected from Production on January 23. Final heading, assembly, and test will follow.

Research Department

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RIFLE PRODUCT DEVELOPMENT - cont'd.o Model 700 Classic - .350 Rem. Mag.

Testing of ten prototype rifles was completed on January 11 with satisfactory results.

o Model 700 Mountain Rifle

The N/C Shop's estimated completion date for the stock former is now January 28. The former is rough cut except for the cheek-piece area.

o Parker Shotgun

A three-phase contract has been submitted to Briley Manufacturing for assistance in the development of a Parker shotgun.

AMMUNITION RESEARCH"PREMIER" SHOTSHELLo 12 Ga. 3" 1 7/8 oz. SP (Two Piece Plastic Basewad) Large Volume Body

An experimental machine loading has been successfully completed. Appearance and load fit was excellent. Product has been stored for short and long term environmental ballistics and function and casualty. This load uses existing powders, wad and shot buffer which would lend itself to a speedy introduction.

LLDPE RPl2 wads were also made for this load which will improve cold temperature ballistics.

o 12 Ga. 3" 1 7/8 Rotary Cam Large Volume Body

An experimental machine loading was completed in Lonoke. Ballistics were acceptable using a new Hercules powder after over night storage at the test temperatures. However, load fit was unacceptable when loaded at the mean shot weight due to inconsistent crimps (high centers). The machine doubled sided chargers were set up correctly for all components.

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"PREMIER" SHOTSHELL - cont'd.o 12 Ga. 3" 1 7/8 Rotary Cam Large Volume Body - cont'd.

We have concluded that the RCLV body does not have adequate internal volume when using this load configuration (12 SMAG wad, hard shot, Gulf buffer and slow powders) combined with the loading machine shot weight variation (+/- 30gr for #4 shot). Shot weight variation at loading resulted in ballistic variation, high crimps and mouth buckling. Experience with hard shot is that shot weight variation increases with larger shot (up to +/- 50gr for BB shot). Lonoke has been made aware of this observation. A similar problem exists with steel shot. As a result all "Premier", steel, and buck shot loads will be developed in the SPLV body.

Design concepts have been proposed to increase the RCLV volume by reducing the wall to .025" from .0325". However, work will not begin until all the "Premier" loads have been completed in the SP body and sourcing is eliminated.

In other related work, 12,000 linear low density polyethylene (LLDPE) 12SMAG wads were successfully made on a production injection molding machine. Cold temperature ballistics were improved. Wad recovery tests are in progress to confirm wad integrity.

Use of USI low density polyethylene shot buffer offers significant advantages in powder selection at loading. However, it will not feed satisfactorily on our loading equipment compared to our present Gulf high density polypropylene buffer. Two design concepts have been layed out and details are being prepared.

o 12 Ga. 3" 1 5/8 oz.

Screening tests are being repeated using the SPLV body.

o 20 Ga. 3" 1 1/4 oz.

Designed experiments have confirmed at least one powder that is acceptable within the loading machine limits for #4 hard shot. One other powder candidate identified in the screening test is being evaluated in the designed tests. A machine loading is scheduled for February.

o 20 Ga. 2 3/4" 1 1/8 oz.

Screening tests have identified one powder candidate using Gulf buffer. Other powders are also being evaluated. Designed experiments will follow.

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NEW UNIBODY SHOTSHELLo Product Implementation Plan

The Research and Production schedule for completing the Trial & Pilot has been reviewed and updated as shown below:

	<u>Original</u>	<u>Revised</u>
8 ga.	2/85	2/85
12 ga. TGT	5/85 (R209 primer)	4/85
12 ga. 3"	5/85 ("Premier")	5/85
	6/85 (Steel)	6/85
	7/85 (Buck)	7/85
20 ga.	5/85 ("Premier")	5/85
20 ga. 3"	6/85 ("Premier")	6/85
28 ga.	3Q85	3Q85
.410 bore	3Q85	3Q85
16 ga.	4Q85	4Q85
10ga.	4Q85	4Q85

o 8 Ga.

The Trial & Pilot loading run has been successfully completed. Tests are in progress and the RC body appears superior to control. A Release to Ship will be circulated.

o 12 Ga. TGT

The experimental loading run was halted due to occurrences of primer movement in function and casualty testing. It was concluded that AH&P set up improvements were needed. A noticeable ring seal was absent on those samples with primer movement. Selected samples with the ring seal are being loaded and tested to prove out this assumption.

o 20 Ga. 3"

10,000 bodies were made to the full 3" length with excellent results. Bodies are being sent to Russell for feed bowl development. These bodies will be run through AH&P in February.


WHColeman:sps

Research Department

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RESEARCH PERSONNEL AS OF JANUARY 31, 1985FIREARMSExempt 25Non/Exempt 11Wage Roll 16

Balaska, Robert J.
 Bauman, Thomas G.
 Bower, James W.
 Calkins, Kevin L.
 Coleman, Wm., H., II
 Curry, Wm.
 Findlay, David S.
 Franz, Scott R.
 Hand, Charles J.
 Hennings, James H.
 Hugick, Adam H.
 Hutton, James C.
 Lawrence, Jeffrey A.
 Martin, Fred E.
 Murphy, Randall S.
 Nightingale, Richard E.
 Plunkett, Thomas J.
 Powers, Thomas P.
 Rankins, Edwin
 Rowlands, Kenneth C.
 Sanzo, Robert J.
 Sassone, Richard
 Saunders, Eugene L.
 Smith, Floyd H.
 Snedeker, James R.

Eskoff, Sophie S.
 Jones, Raymond A.
 Martin, James S., Jr.
 Pickett, Wm. F.
 Saunders, Susan P.
 Schuster, Joyce M.
 Smithson, Ronald L.
 Stephens, Charles J.
 Supry, Fred L.
 Urtz, Donald J.
 Weaver, Harold E.

Baggetta, Joseph A.
 Beader, Robert W.
 Bedworth, Gary R.
 Butler, Richard G.
 Fiorentino, Dominick J.
 Harter, James D.
 Howe, Robert W.
 Jennings, Dale E.
 Kozakowski, Robert J.
 Paslak Wm. A.
 Sohns, Wm. A.
 Storne, Ramon
 Truax, Irving E., Jr.
 Williams, Clifford G.
 Williams, Donald M.
 Williams, Ronald R.

Total Firearms Personnel - 52

AMMUNITIONExempt 7Non/Exempt 4Wage Roll 2

Cole, Wm. T.
 desJardins, C.F., Jr.
 Dwyer, John M. **
 McDonald, Alexander D.
 Peterkin, V.A. *
 Sroka, L.R. **
 Tomek, Warren L.

Buccitti, Dominick C.*
 Champine, Barry M. **
 Conant, Paul
 Thomas, Dennis

Dunn, Timothy
 Selan, Jerry

Total Ammunition Personnel - 13

* - Bridgeport
 ** - Lonoke

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REMINGTON PERSONNELRemington Roll

	Actual <u>1/31/85</u>
<u>Exempt</u>	
Ammunition Research	7
Firearms Research	25
Firearms Modernization	9
Administration	1
Total Exempt	<hr/> 42
<u>Non/Exempt</u>	
Ammunition Research	4
Firearms Research	11
Firearms Modernization	1
Administration	1
Total Non/Exempt	<hr/> 17
<u>Wage Roll</u>	
Ammunition Research	2
Firearms Research	16
Firearms Modernization	1
Total Non/Exempt	<hr/> 19
Total New Products Research	78